

MEMORANDUM

SUBJECT: US EPA Science Advisory Board (SAB) Committee on Valuing the Protection of Ecological Systems and Services: Description of Process for Forming the Committee

FROM: Angela Nugent /s/ August 11, 2001
Designated Federal Officer
EPA Science Advisory Board Staff Office (1400A)

THRU: Daniel Fort
Acting Deputy Ethics Officer
EPA Science Advisory Board Staff Office (1400A)

TO: Vanessa T. Vu, PhD
Director
Office of the EPA Science Advisory Board (1400A)

This memo addresses the steps involved in forming a new committee. It provides background information on this SAB activity and then identifies the major steps. As the Committee provides advice to the Agency on specific topics, the DFO will initiate a review to identify any conflict of interest and appearance of lack of impartiality related to those topics and will document the results in additional memoranda.

A. Background

The EPA Science Advisory Board (SAB) undertook this project because the SAB's Executive Committee (EC) decided in March 2002 that the issue of valuing the protection of ecological systems and services is an important, multi-dimensional and multi-media issue where the scientific and technical advice of the Board is needed. The EC noted that programs across the Agency and SAB Committees have acknowledged the importance of valuing the protection of ecological systems and services. One major example was noted in the fall of 2001 by the Advisory Council on Clean Air Compliance Analysis in its review of EPA's Office of Air and Radiation's plans for a new major analysis of the Costs and Benefits of the Clean Air Act. In that review, the Council identified that a "major effort" was needed "to develop credible methods to quantify and monetize the effects of marginal changes in air pollution on ecosystem processes"

and to include non-market ecosystem services in future Section 812 reports.”(*Draft Analytical Plan for EPA's Second Prospective Analysis -Benefits and costs of the Clean Air Act, 1990 - 2020: An Advisory by the Advisory Council for Clean Air Compliance* EPA-SAB-COUNCIL-ADV-01-004).

A request for nominations for the Committee (then termed a “Panel”) appeared in the *Federal Register* on March 7, 2003 (68 FR 11082-11084, See Attachment 1). The SAB Staff Office received 147 nominations for the Committee. From those nominations, the Staff Office Director, on the advice of the DFO and the Chair of the Committee, selected a short list of 44 experts.

B. Determinations

1) The charge to the committee: The SAB Executive Committee developed the charge at its spring 2001 quarterly meeting.

The EC Committee recognized that the committee will need to synthesize the existing serious work already invested on this issue and currently underway elsewhere and define and steer distinct activities where the SAB can add value to those efforts. It envisioned a multi-year effort to build upon and go beyond past guidance and efforts to support the Agency’s valuation methods. The SAB’s effort would identify research needs to improve valuing of ecological resources and identify scientifically appropriate methods and suite of tools to be used to assist decision making to protect ecological resources. The Executive Committee envisioned that the Committee will plan and conduct a series of activities designed to accomplish the following:

(a) Enhance the ability of ecological, economic, social, and technological analysis to contribute useful assessment of the value of changes in and the protection of ecosystems and ecosystem services.

(b) Explore alternative approaches (e.g., benefit-cost analysis, ecological analysis, and the analysis of public concerns and values) in terms of the soundness and reliability of the methods involved, the current evidentiary base associated with each, data gaps, and potential contributions to decision making.

(c) Identify research needs and priorities for the further development of each of these approaches and to explore innovative strategies to encourage new research and new investigators to address the value of ecological systems and services.

(d) Compare the different approaches, identifying areas of convergence and divergence and the potential for developing more integrative and synthetic approaches.

(e) Make recommendations as to how these alternative approaches may inform and be incorporated in the Agency’s valuing the protection of ecological systems and services and to contribute to the work of other SAB committees.

Specific activities to respond to this charge are to be defined by the new SAB Committee. The Committee will not focus on the review of one single document. Rather, the Committee will review many documents related to assessing the value of ecological systems and services and the methods used by them. In so doing, the Committee may review documents on a wide range of

topics including past and current regulatory issues, documents relevant to environmental decision making at the national and regional levels, and research planning documents.

As the planning of these activities takes more definite shape and as the Agency documents are specified, the DFO will initiate a review to identify any conflict of interest and appearance of lack of impartiality. The DFO will prepare an additional memorandum concerning conflict of interest and appearance of lack of impartiality prior to the Committee's providing advice on any specific documents.

2) Type of Committee that will be used to conduct the review, the name of the Committee, and identification of the Committee Chair; types of expertise needed to address the charge: The committee will be an *ad hoc* committee, established to report to the SAB Executive Committee. The name was chosen to emphasize the multi-disciplinary nature of the committee, which was not to focus on methods of valuation arising from any one discipline. The chairperson for this committee is Dr. Domenico Grasso. Dr. Grasso is Chair of the SAB's Environmental Engineering Committee and distinguished Rosemary Bradford Hewlett Professor and Founding Director of the Picker Engineering Program at Smith College in Northampton, Massachusetts. He holds adjunct faculty appointments at the Universities of Connecticut and Massachusetts and Yale University. The SAB Staff Office chose Dr. Grasso because he is a leader in inter-disciplinary program development and problem solving; he has demonstrated ability in chairing diverse committees addressing complex topics, and he has a keen interest in the topic, no commitment *a priori* to any of the methodologies that will be considered. and no conflicts of interest on other issues related to the Committee's work.

The FEDERAL REGISTER notice cited above identified the types of expertise needed to address the charge to the Committee. It called for nominations of committee members with expertise in one or more of the following areas:

- (a) Decision Science
- (b) Ecology
- (c) Economics
- (d) Engineering
- (e) Psychology
- (f) Social Sciences with emphasis in ecosystem protection

It also stated that prior experience that involved valuing of ecosystems and services according to a structured scientific method was desirable.

3) Identification of parties who are potentially interested in or may be affected by the topic to be reviewed: Parties outside EPA who may be potentially interested in or may be affected in the short term by the advisory topic to be addressed include regulated entities, associations, and environmental groups with an interest in activities on EPA's regulatory agenda for FY 2003 and FY 2004 that involve ecological protection issues. A review of the regulatory agenda shows the following activities in this category: regulations under the Clean Water Act under Section 316b; Total Maximum Daily Load activities; effluent guidelines

especially those affecting cooling water towers, and construction and development guidelines. Parties who may be potentially affected by relevant regulatory changes include:

- Association of Metropolitan Sewer Agencies (AMSA)
- Association of State & Interstate Water Pollution Control Administrators (ASWIPCA)
- Sierra Club
- National Resource Defense Council (NRDC)
- Clean Water Action (CWA)
- Clean Water Network (CWN)
- Environmental Council of States (ECOS)
- Large industrial users of surface and ground water.

In the longer term, other parties who may be potentially interested in or affected by this advisory activity are those who follow development of risk assessment and benefit assessment methods, because they see methods valuation of ecological systems and services as a key issue for EPA's implementation of new risk assessment approaches. This area has become a sub-specialty area within the fields of environmental economics, ecological economics, and ecology. National environmental groups and businesses have developed an interest in the science emerging in this area.

4) Whether the charge involves a Particular Matter¹ and how conflict of interest regulations apply to members of the committee: A major part of the SAB committee's activity in addressing the charge does not qualify as a particular matter because the advice that will result will not be part of a deliberation focused on the interests of specific people or a discrete and identifiable class of people. To the extent that the Committee will be providing advice on key areas for improving "valuing methods and use of methods" for decision-making, the Committee will be considering broad scientific issues directed to the interests of a large and diverse group of people and does not qualify as a particular matter.

As noted above in Section B.1. of this memorandum, the Committee may provide advice on several specific Agency documents in the course of its activities. The DFO will prepare an additional memorandum concerning conflict of interest and appearance of lack of impartiality prior to the Committee's providing advice on those topics.

The SAB Staff Office notes that where the Committee provides advice on the direction of future research funding, this function raises the issue of whether such advice may have the potential to become a particular matter if the advice meetings the triggers of 18 U.S.C. 208, i.e., : "An employee is prohibiting from participating personally and substantially in an official

¹The term "particular matter" refers to matters that involve deliberation, decision, or action that is focused on the interests of specific people or a discrete and identifiable class of people. The term may include matters that do not involve formal parties and may extend to legislation or policy-making that is narrowly focused on the interests of a discrete and identifiable class of people. But the term does not cover consideration or adoption of broad policy options directed to the interests of a large and diverse group of people. [5 C.F.R. 2640.103(a)(1)]

capacity in any particular matter in which he, to his knowledge, he or any person whose interests are imputed to him under this statute has a financial interest, if the particular matter will have a direct and predictable effect on that interest.” Members of an SAB Committee meet the legal definition of an "employee" because they serve as Special Government Employees (SGEs).

In order to determine how conflict of interest regulations apply to members of the committee, the DFO conducted an analysis for each committee member to determine whether the following provision of 18 U.S.C. 208 applies: “An employee is prohibiting from participating personally and substantially in an official capacity in any particular matter in which he, to his knowledge, he or any person whose interests are imputed to him under this statute has a financial interest, if the particular matter will have a direct and predictable effect on that interest.”

In determining whether a candidate's participation has a direct and predictable effect on their financial interest, the DFO has evaluated candidates’ financial disclosures, including sources of research funding that may include grants and cooperative agreements. The DFO has considered the process for awarding grants and whether it could directly tie a person’s actions in this review to a financial gain. In evaluating this factor, the requirement is that the person’s actions in participating in the matter must have a “**close causal link**” to their financial interest. Further, the link must be predictable, that is **actual** and not “speculative.”

In the candidates for the Committee, the “chain of causation” is **attenuated** and contingent upon the occurrence of events that are speculative. The Committee will be reviewing a range of documents and methods to assist it in completing its charge. The charge to the Committee does not specify projects that would be the focus of any members’ research efforts that could be funded by EPA. Further, selection of any future grant recipients follows a complex two-stage process in which independent reviewers judge the scientific quality of a proposal and then agency representatives judge the relevance of the proposal to answering major scientific questions within the research area. Thus, actual selection of grant recipients is mediated via a chain of events that attenuates any direct linking of a grant to a member or candidates participation in the review of this research strategy. Any effects from participating in this review would not be direct, nor would they be predictable. Therefore, no conflict of interest as defined by 18 U.S.C. 208 exists in association with grant holding by members or candidates.

Because the procedure for awarding **cooperative agreements** and **contracts** differs, each specific situation will be evaluated to determine if a direct and predictable effect exists between the person’s participation and their financial interest.

In addition, situations in which candidates for supplementing this Committee have grants, cooperative agreements, and contracts from EPA that are for work that fits conceptually within this Strategy will be evaluated under the requirements for considering “appearances of impartiality” under 5 C.F.R. 2635.502 (see section 5 below).

5. How regulations concerning “appearance of lack of impartiality” under 5 C.F.R. 2635.502 apply to members of the committee. The Code of Federal Regulations state that “Where an employee knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the person determines that the circumstances would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee.”

This advisory activity is not a specific party matter, so there is no legal issue concerning “appearance of lack of impartiality” under federal regulations.

As noted in item 1 above, the research strategy can be considered as a particular matter involving specific parties in some circumstances (i.e., for members and candidates holding or having grants, cooperative agreements and contracts pending within the area covered by the Strategy). However, as noted also in item 4, the chain of events for a grant is attenuated by certain factors that do not constitute a conflict of interest and the "appearance of impartiality" criterion at 5 C.F.R. 2635.502(a) is not met. Cooperative agreements and contracts may present a different situation and each member will be evaluated for whether their financial interest in existing cooperative agreements and contracts constitutes such a conflict.

Even though circumstances for some specific candidates for the committee may not raise formal COI, nor formal appearance concerns, each candidate will be evaluated against the 5 C.F.R. 2635(a)(2) general requirements to ensure that appearance of impartiality issues do not preclude their participation. Information used in this evaluation will come from their EPA Form 3110-48, from specific interviews, and from information that comes from public comments and other staff research. For members and candidates who hold grants, cooperative agreements or contracts, Staff will determine whether the "reasonable person" criterion is met in the following manner:

i) Those who receive an EPA grant, cooperative agreement, or contract funds as part of their salary, for specific efforts that will be reviewed by the Committee, will be considered to meet the criterion.

ii) Those who have pending an EPA grant, cooperative agreement, or contract whose funds could be directly received as part of a member's or candidates' salary, for specific efforts that will be reviewed by the Committee, will be considered to meet the criterion.

iii) Those who work in Departments of Institutions that hold grants, contracts or cooperative agreements for specific efforts that will be reviewed by the Committee, will be considered to meet the criterion.

iv) Those who receive grant, cooperative agreement, or contract funds as part of their salary, for specific efforts outside the review activities of the Committee, will be considered not to meet the criterion.

v) Those who have pending a grant, cooperative agreement, or contract whose funds could be directly received as part of a member's or candidates' salary, for specific efforts outside the review activities of the Committee, will be considered not to meet the criterion.

vi) Those who have completed grants, cooperative agreements, or contracts in any research area, for any EPA office will be considered not to meet the criterion.

vii) Those who work in Departments of Institutions that have completed grants, contracts or cooperative agreements from any EPA office for efforts within or outside the Strategy, will be considered not to meet the criterion.

The SAB Staff Office Deputy Ethics Officer will need to make a formal determination for any candidate who meets the 5 C.F.R. 2635(a)(2) criterion. This determination will be documented in a letter from the DEO to the individual. Those not obtaining such a determination will not participate in the review.

Even though the advisory activity doesn't meet the requirement for a specific party matter, the DFO determined, on a case-by-case basis whether the committee member knows of any financial interest in this matter on the part of the SGE or other parties imputed to the SGE, including but not limited to the SGE's spouse or minor child; a general partner; an organization in which the SGE is serving as an officer, director, trustee, general partner, or employee; or a prospective employer. The Ethics Officer has determined through review of all Confidential Financial Disclosure Reports provided by all prospective committee members that there is no conflict of interest presented.

6. How individuals were selected for the "Short List" posted on the SAB website as candidates for the committee.

The DFO reviewed 147 nominations for the Committee and narrowed the list of nominees to a "Short List" of 44 candidates based on the qualifications and interest of the nominees. Brief biosketches of the 44 candidates on the current "Short List" were posted on the SAB website on May 1, 2003 for a twenty-one day public comment period. The SAB Staff Office invited comments from the public on these candidates. It requested information, analysis or documentation that the Board should consider in evaluating the "Short List" remaining candidates. Comments were received from 15 individuals, listed in Attachment 3. Individuals on the short list, who were not chosen for the Committee, may be asked to serve as consultants on specific sub-topics related to valuing the protection of ecological systems and services. Their "Confidential Financial Disclosure Form" will be reviewed prior to any such request.

7. How individuals were selected for the final committee.

The SAB Staff Office Director, in consultation with the DFO and the Chair of the Committee, decided who will serve on the Committee in the "Panel Selection" phase. After the "short list" was posted, the DFO reviewed the resumes and *curriculum vitae* of candidates, candidates' responses to questions about their point of view related to the advisory topic, and other information provided by the public during the "short list" phase. The DFO and the Chair recommended a slate of candidates with the appropriate balance and breadth needed to address the charge; this slate of candidates included ecologists, economists, and other scientists with backgrounds in engineering, social science, decision science, and philosophy.

The Ethics Officer completed his review of information regarding conflict of interest and possible appearance of impartiality for the slate of candidates and found no conflict of interest related to the advisory issue to be addressed. In one case, where a pending grant might raise an issue of appearance of lack of impartiality, the individual has agreed to recuse himself from discussions pertaining to that activity, should they arise.

Concurred,

/s/

August 11, 2001

Vanessa T. Vu, Ph.D.
Director
EPA Science Advisory Board Staff Office

Date

- Attachment 1: *Federal Register* Science Advisory Board; Request for Nominations for Experts for a Panel on Valuing the Protection of Ecological Systems and Services (66 FR, 11082_11084)
- Attachment 2: Invitation for Comments on "Short List" Candidates for the EPA Science Advisory Board's Panel on "Valuing the Protection of Ecological Systems and Services," May 1, 2003
- Attachment 3: List of the Names of Groups and Individuals Submitting Public Comment on the Values Committee Short List
- Attachment 4: Roster of Committee on Valuing the Protection of Ecological Systems and Services

Attachment 1
***Federal Register Science Advisory Board; Request for Nominations for Experts for a Panel
on Valuing the Protection of Ecological Systems and Services (66 FR, 11082-11084)***

ENVIRONMENTAL PROTECTION AGENCY
[FRL-7460-4]

Science Advisory Board; Request for Nominations for Experts for a
Panel on Valuing the Protection of Ecological Systems and Services

AGENCY: Environmental Protection Agency (EPA).
ACTION: Notice.

SUMMARY: The EPA's SAB is announcing the formation of a new SAB Panel
and is soliciting nominations for members of the panel.

DATES: Nominations should be submitted on or before March 28, 2003.

ADDRESSES: Nominations should be submitted in electronic format through
the Form for Nominating Individuals to Panels of the EPA Science
Advisory Board provided on the SAB Web site. The form can be accessed
through a link on the blue navigational bar on the SAB Web site, [http://
www.epa.gov/sab](http://www.epa.gov/sab). To be considered, all nominations must include the
information required on that form. Anyone who is unable to submit
nominations via this form may contact Dr. Angela Nugent, Designated
Federal Officer, U.S. EPA Science Advisory Board (1400A), by telephone/
voice mail at (202) 564-4562, by fax at (202) 501-0323, or via e-mail
at nugent.angela@epa.gov.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing
further information regarding this Request for Nomination may contact
Dr. Angela Nugent at the address above.

SUPPLEMENTARY INFORMATION:

1. Action: Notice; request for nominations to a new ``Panel on
Valuing the Protection of Ecological Systems and Services" of the
EPA's Science Advisory Board (SAB).
2. Summary: The EPA's SAB is announcing the formation of a new
Panel to provide advice to strengthen the EPA's approaches for
assessing the costs and benefits of environmental programs that protect

ecological systems and services, to identify research needs to improve how ecological resources are valued, and to support decision making to protect ecological resources. The SAB is soliciting nominations to establish the members of the new Panel.

This Panel is being formed to provide advice to the Agency, as part of the EPA SAB's mission, to provide independent scientific and technical advice, consultation, and recommendations to the EPA Administrator on the technical bases for EPA regulations. The project it will undertake is a self-initiated project of the Board, intended as a multi-year effort; the background for the effort and the charge to the Panel is described below. The Board is a chartered Federal advisory Committee, which reports directly to the Administrator.

Members of the Panel will provide advice to the Agency, through the SAB's Executive Committee, over a two-to-three year period. Over that period, the Panel will comply with the provisions of FACA and all appropriate SAB procedural policies, including the SAB process for panel formation described in the Overview of the Panel Formation Process at the Environmental Protection Agency Science Advisory Board, which can be found on the SAB's Web site at: <http://www.epa.gov/sab/pdf/ec02010.pdf>

3. Background: EPA's Strategic Plan (EPA-190-R-00-002) states as goals one, two and four that a major part of the EPA's mission is to safeguard the natural environment, air, water, healthy communities and ecosystems, upon which life depends. The goals address ecosystem protection and restoration. Goal one, for example, specifies links between reductions in air pollution and protection of the environment, and such benefits as restoring life in damaged ecosystems. The Agency is seeking scientific guidance on measures to improve quantification and characterization of benefits of protecting ecosystems and restoring life in damaged ecosystems and to inform environmental protection decisions.

Goals two and four of the EPA Strategic Plan include ``the restoration and protection of watersheds and their aquatic ecosystems to improve public health, enhance water quality, reduce flooding, and provide habitat for wildlife and the desire of ``preventing pollution and reducing risk in communities, homes, workplaces, and ecosystems." Meeting these goals will require a scientifically rigorous method to quantify not only losses of commercially exploited ecosystem benefits (e.g., recreational fishing, impact of atmospheric sulfur and nitrogen oxides, lost commercial timber from ozone damage), but also to quantify and characterize the benefits of protecting ecological systems and services (emphasize more strongly) (e.g., carbon sequestration, water purification, water retention, biodiversity, existence values, aesthetic values, and habitat).

In short, the EPA needs a comprehensive effort that will improve the methods used to value the benefits of protecting ecological systems and services to facilitate Agency decisions concerning the protection and restoration of ecosystems. Developing and implementing such methods will assist the Agency in meeting the eighth Goal of the Strategic Plan, ``to develop and apply the best available science for addressing current and future environmental hazards as well as new approaches toward improving environmental protection."

The SAB Executive Committee has determined that the issue of protection of ecological systems and services and valuing of their protection is an important, multi-dimensional issue where the scientific and technical advice of the Board is needed. It has acknowledged that valuing the protection of ecological systems and services has proved a challenging problem for the Agency and existing SAB Advisory committees to address.

In regard to this last point, the Board notes that in 2001, the independent

[[Page 11083]]

Advisory Council on Clean Air Compliance Analysis, whose chair sits on the SAB Executive Committee, identified that a ``major effort" was needed ``to develop credible methods to quantify and monetize the effects of marginal changes in air pollution on ecosystem processes" and to include non-market ecosystem services in future Section 812 reports (Draft Analytical Plan for EPA's Second Prospective Analysis

Advisory Council for Clean Air Compliance EPA-SAB-COUNCIL-ADV-01-004). The Council advised the Agency to develop a major review of the economic literature focusing on the valuation of ecological systems and services, with the purpose of differentiating results more useful for the Agency's 812 analysis of ecological benefits from those less useful.

The SAB notes that the new Panel is likely to address many of the issues raised in a 2001 SAB report, Toward Integrated Environmental Decision Making (EPA-SAB-EC-00-011). That report noted the following impediments to the valuing of ecological systems and services: difficulty translating changes in ecological conditions into monetary units; difficulty measuring values placed on keeping ecosystems viable (``existence values") because the public often does not have knowledge about ecological impacts; difficulty finding ecological services reflected well in markets; and difficulty measuring values such as equity and sustainability. The report also cited the following needs: better methods to estimate value the public places on protecting

ecological conditions; better methods to incorporate values and preferences into decision-making; and more open dialogue among scientists and between scientists and decision makers.

The Board notes that many of these issues were also discussed at a joint EPA/SAB workshop in 2001, and documented in the report: Understanding Public Values and Attitudes Related to Ecological Risk Management: An SAB Workshop Report of an EPA/SAB Workshop (EPA-SAB-EC-WKSP-01-001). The workshop was a public meeting designed to demonstrate how researchers using different kinds of analytical methods, tools, and approaches from the social sciences can mutually inform each other and risk managers in understanding: (a) Public values and attitudes related to specific threats to ecological resources, such as Tampa Bay Estuary, a body of water threatened with nitrogen deposition and (b) the significance of those values to decision makers. The Report identified opportunities to improve consideration of values in environmental decision making in the following areas: environmental science; social, economic and behavioral sciences; actions to be taken by policy makers and their roles; roles and requirements of stakeholders; and research development and research needs.

4. Proposed Charge to the Panel: The Executive Committee notes that the panel will need to synthesize the existing serious work already invested on this issue and currently underway elsewhere and define and steer distinct activities where the SAB can add value to those efforts. Currently, the National Academy of Sciences is working on a project titled "Assessing and Valuing of Aquatic Ecosystem Services." This project, which is being co-sponsored by the EPA, is meant to "evaluate methods for assessing services and associated economic values of aquatic and related terrestrial ecosystems. The Executive Committee desires coordination with efforts such as this one, so that the panel builds on the information and advice developed. It envisions a multi-year effort to build upon and go beyond past guidance and efforts to support the Agency's valuation methods. The SAB's effort would identify research needs to improve valuing of ecological resources and identify scientifically appropriate methods and suite of tools to be used to assist decision making to protect ecological resources. The Executive Committee envisions that the Panel will plan and conduct a series of activities designed to accomplish the following:

(a) Enhance the ability of ecological, economic, social, and technological analysis to contribute useful assessment of the value of changes in and the protection of ecosystems and ecosystem services.

(b) Explore alternative approaches (e.g., benefit-cost analysis, ecological analysis, and the analysis of public concerns and values) in terms of the soundness and reliability of the methods involved, the current evidentiary base associated with each, data gaps, and potential

contributions to decision making.

(c) Identify research needs and priorities for the further development of each of these approaches and to explore innovative strategies to encourage new research and new investigators to address the value of ecological systems and services.

(d) Compare the different approaches, identifying areas of convergence and divergence and the potential for developing more integrative and synthetic approaches.

(e) Make recommendations as to how these alternative approaches may inform and be incorporated in the Agency's valuing the protection of ecological systems and services and to contribute to the work of other SAB committees.

Specific activities to respond to this charge are to be defined by the new SAB Panel.

5. SAB Request for Nominations: Any interested person or organization may nominate qualified individuals for membership on the Subcommittee. Individuals should have expertise in one or more of the following areas:

- (a) Decision Science
- (b) Ecology
- (c) Economics
- (d) Engineering
- (e) Psychology
- (f) Social Sciences with emphasis in ecosystem protection

Prior experience that involved valuing of ecosystems and services according to a structured scientific method is desirable.

6. Process and Deadline for Submitting Nominations: Any interested person or organization may nominate qualified individuals to add expertise in the above areas Panel. Nominations should be submitted in electronic format through the Form for Nominating Individuals to Panels of the EPA Science Advisory Board provided on the SAB Web site. The form can be accessed through a link on the blue navigational bar on the SAB Web site, MACROBUTTON HtmlResAnchor <http://www.epa.gov/sab>. To be considered, all nominations must include the information required on that form.

Anyone who is unable to submit nominations using this form may contact Dr. Angela Nugent at the mailing address above. Nominations should be submitted in time to arrive no later than 21 days after the publication date of this Federal Register Notice. Any questions concerning either this process or any other aspects notice should be directed to Dr. Nugent.

The EPA Science Advisory Board will acknowledge receipt of the

nomination and inform nominators of the panel selected. From the nominees identified by respondents to this Federal Register notice (termed the ``Widecast"), SAB Staff will develop a smaller subset (known as the ``Short List") for more detailed consideration. Criteria used by the SAB Staff in developing this Short List are given at the end of the following paragraph. The Short List will be posted on the SAB Web site at: <http://www.epa.gov/sab>, and will include, for each candidate, the nominee's name and

[[Page 11084]]

their biosketch. Public comments will be accepted for 21 calendar days on the Short List. During this comment period, the public will be requested to provide information, analysis or other documentation on nominees that the SAB Staff should consider in evaluating candidates for Panel.

For the EPA SAB, a balanced review panel (i.e., committee, subcommittee, or panel) is characterized by inclusion of candidates who possess the necessary domains of knowledge, the relevant scientific perspectives (which, among other factors, can be influenced by work history and affiliation), and the collective breadth of experience to adequately address the charge. Public responses to the Short List candidates will be considered in the selection of the panel, along with information provided by candidates and information gathered by EPA SAB Staff independently on the background of each candidate (e.g., financial disclosure information and computer searches to evaluate a nominee's prior involvement with the topic under review). Specific criteria to be used in evaluating an individual subcommittee member include: (a) Scientific and/or technical expertise, knowledge, and experience (primary factors); (b) absence of financial conflicts of interest; (c) scientific credibility and impartiality; (d) availability and willingness to serve; and (e) ability to work constructively and effectively in committees.

Short List candidates will also be required to fill-out the ``Confidential Financial Disclosure Form for Special Government Employees Serving on Federal Advisory Committees at the U.S. Environmental Protection Agency" (EPA Form 3110-48). This confidential form, which is submitted by EPA SAB Members and Consultants, allows Government officials to determine whether there is a statutory conflict between that person's public responsibilities (which includes membership on an EPA Federal advisory committee) and private interests and activities, or the appearance of a lack of impartiality, as defined by Federal regulation. The form may be viewed and downloaded from the following URL address: <http://www.epa.gov/sab/pdf/epaform3110-48.pdf>.

Subcommittee members will likely be asked to attend at least one public face-to-face meeting and several public conference call meetings over the anticipated course of the advisory activity.

The approved policy under which the EPA SAB selects review panels is described in a recent SAB document, EPA Science Advisory Board (SAB) Panel Formation Process: Immediate Steps to Improve Policies and Procedures--An SAB Commentary (EPA-SAB-EC-COM-002-003), which can be found on the SAB's Web site at: (<http://www.epa.gov/sab>) <http://www.epa.gov/sab/pdf/ecm02003.pdf>

Additional information concerning the EPA Science Advisory Board, including its structure, function, and composition, may be found on the EPA SAB Web site at: <http://www.epa.gov/sab>; and in the EPA Science Advisory Board FY2001 Annual Staff Report, which is available from the EPA SAB Publications Staff at phone: (202) 564-4533; via fax at: (202) 501-0256; or on the SAB Web site at: <http://www.epa.gov/sab/annreport01.pdf>.

7. For Further Information Contact: Any member of the public wishing further information regarding this Request for Nomination may contact Dr. Angela Nugent, Designated Federal Officer, U.S. EPA Science Advisory Board (1400A), Suite 6450C by telephone/voice mail at (202) 564-4562, by fax at (202) 501-0323; or via e-mail at nugent.angela@epa.gov.

Dated: February 28, 2003.
Vanessa T. Vu,
Director, EPA Science Advisory Board Staff Office.
[FR Doc. 03-5474 Filed 3-6-03; 8:45 am]
BILLING CODE 6560-50-P

Attachment 2
Invitation for Comments on "Short List" Candidates for the EPA Science
Advisory Board's Panel on "Valuing the Protection of Ecological Systems and Services," May 1, 2003
Attachment 3:
List of the Names of Groups and Individuals Submitting Public Comment on the Values Committee
Short List

The EPA Science Advisory Board (SAB, Board) announced in 68 FR 11082-11084, March 7, 2003 that it was forming a Panel on a self initiated project, "Valuing the Protection of Ecological Systems and Services" and requested nominations for potential panel members. Background on the project and details on panel nomination process reviewed appear in the above referenced Federal Register notice and are also available at the SAB website, (www.epa.gov/sab).

The Science Advisory Board Staff Office has reviewed the over 140 nominations for the Panel, and has narrowed the list of nominees to a "Short List" of 44 candidates based on the qualifications and interest of the nominees. Brief biosketches of the 44 candidates on the current "Short List" are listed below for comment. We invite comments from the public on these candidates. We welcome information, analysis or documentation that the Board should consider in evaluating the "Short List" remaining candidates. Individuals should send their comments to Dr. Angela Nugent, Designated Federal Officer for the Panel, by May 22, via email to nugent.angela@epa.gov. Information provided will be carefully considered in selecting the panel, which will be composed of 20-25 experts. Individuals on the short list, who are not chosen for the Panel, may be asked to serve as consultants on specific sub-topics related to valuing the protection of ecological systems and services.

The SAB Staff Office Director, in consultation with SAB leadership, as appropriate, makes the final decision about who will serve on the panel in the "Panel Selection" phase. In that phase, SAB Staff completes its review of information regarding conflict of interest, possible appearance of impartiality, and appropriate balance and breadth needed to address the charge. They review all the information provided by the candidates, along with any information that the public may provide in response to the posting of information about the prospective panel on the SAB website during the "Short List Phase," and information gathered by SAB Staff independently on the background of each candidate.

"Short List" for SAB Panel on "Valuing the Protection of Ecological Systems and Services"

| | | |
|-----------------------------|---|---|
| Ascher, William Louis | Claremont College | <p>Dr. William Ascher (PhD, Political Science, Yale University) is the Donald C. McKenna Professor of Government and Economics at Claremont McKenna College, where he also serves as Vice President and Dean of the Faculty. His research covers environmental and natural resource policymaking, evaluation and forecasting methodologies, and policymaking processes in developing countries. As the Director of the Duke University Center for International Development Research, he led workshops on the valuation of environmental services for the UN Food and Agriculture Organization and several national governments. He also undertook World Bank-funded research on the valuation of oil and mineral assets. His most recent books are <i>Why Governments Waste Natural Resources</i> (1999), <i>The Caspian Sea: A Quest for Environmental Security</i> (ed. with Natalia Mirovitskaya, 2000), and <i>Guide to Sustainable Development and Environmental Policy</i> (ed. with Natalia Mirovitskaya, 2001). He has also published two books on political-economic forecasting: <i>Forecasting: An Appraisal for Policymakers and Planners</i> (1978), and <i>Strategic Planning and Forecasting</i> (with William Overholt, 1983). He served on the Advisory Group on the Future of Science, U.S. House of Representatives Subcommittee on Science, Committee on Science, Space and Technology. His most recent grants included funding from NATO for work on the environmental issues of the Caspian Sea, and before that from the World Bank and USAID for work on natural resource and environmental policies in developing countries.</p> |
| Biddinger, Gregory | Exxon Mobil Refining and Supply Company | <p>Dr. Gregory Biddinger is an aquatic ecotoxicologist and Environmental Sciences Advisor with Exxon-Mobil Refining & Supply Company. In his current position he is responsible for developing business planning processes to improve environmental performance, participating in the creation of international standards on environmental management and providing leadership and technical support to business lines on wildlife conservation initiatives. In addition to the SAB he has been active in numerous Society of Environmental Toxicology and Chemistry (SETAC) expert panels and Organisation for Economic Cooperation and Development peer reviews. His many other professional activities include chairmanship of American Society for Testing and Materials, Chemical Manufacturers Association and ISO technical committees. He is currently the Chair of the SETAC Ecological Risk Assessment Advisory Group. He has published broadly in the area of aquatic toxicology on inorganic Arsenicals, Phthalate Esters, chemical dispersants, and the use of microcosms in estimation of tropic transfer of contaminants. As well, Dr. Biddinger has published or edited proceedings on ecological risk assessment and risk management, including such topics as the ecological risks of contaminated sediments, decision support systems, sustainable environmental management and integrated environmental decision-making. His current technical and policy focus is improving the utility of environmental science to make effective and sustainable environmental management decisions. Dr. Biddinger has been reappointed to a second term on the Science Advisory Board's Ecological Processes and Effects Committee.</p> |

| | | |
|---------------|---------------------------------|--|
| Bostrom, Anne | Georgia Institute of Technology | <p>Dr. Ann Bostrom (B.A. in English, University of Washington; M.B.A., Western Washington University; Ph.D. in Public Policy Analysis, Carnegie Mellon University) is an Associate Professor in the School of Public Policy at the Georgia Institute of Technology, where she teaches quantitative and qualitative research methods, environmental risk, and risk communication at the graduate and undergraduate levels. Dr. Bostrom has research interests in risk perception, communication and management, and in cognitive aspects of survey methodology. Her research focuses on mental models of hazardous processes (how people understand and make decisions about risks), and is funded by the National Science Foundation, National Institutes of Health, and the U.S. Environmental Protection Agency. She has published in journals such as Risk Analysis, RISK: Health, Science and Environment, Environmental Science & Technology, and the Journal of Social Issues. She co-authored Risk Communication: A Mental Models Approach, Cambridge University Press, 2001, with M. Granger Morgan, Baruch Fischhoff, and Cynthia Atman. Before beginning her doctoral studies, Dr. Bostrom worked as a summer intern in the Economic Statistics division of the US Bureau of the Census. As a graduate student, Dr. Bostrom received a Fulbright scholarship and the Lois Roth endowment award to study at Stockholm University. Before moving to Georgia Tech, Dr. Bostrom completed one year of postdoctoral research on perceptions of global climate change in the Department of Engineering and Public Policy at Carnegie Mellon University, and a second year on hours at work questions as an American Statistical Association/ National Science Foundation/Bureau of Labor Statistics research associate in the cognitive laboratory at the Bureau of Labor Statistics. In 1997, Dr. Bostrom was awarded the Chauncey Starr Award for a young risk analyst from the Society for Risk Analysis. From 1999-2001, Dr. Bostrom directed the Decision, Risk and Management Science Program at the National Science Foundation. Dr. Bostrom is a member of the Board of Scientific Counselors, advisory to the Office of Research and Development at the U.S. Environmental Protection Agency, and of the National Academy of Science Committee on Optimizing the Characterization and Transportation of Transuranic Waste Destined for the Waste Isolation Pilot Plant, which is a project of its Board on Radioactive Waste. She has also consulted for the Science Advisory Board of the U.S. Environmental Protection Agency on environmental risk communication, the Institutes of Medicine on vaccine risk communication, and the Transportation Research Board on auto safety information, as well as for Scientific Environmental Associates, Inc. She participates in the Vaccine Risk Communication group (VARICO), organized by the Vaccine Safety Development Activities group of the National Immunization Program, Centers for Disease Control and Prevention. Dr. Bostrom is a Councilor for the international Society for Risk Analysis and a past Chair of its Risk Communications Specialty group.</p> |
| Boyd, James | Resources for the Future | <p>Dr. James Boyd has been a Fellow in the Energy and Natural Resources division of Resources for the Future since 1992. Dr. Boyd received his Ph.D. from the Public Policy and Management Department of the Wharton Business School at the University of Pennsylvania in 1993 and has been a Visiting Professor at the Olin Business School Washington University, St. Louis. He is current the Director of RFF's Energy and Natural Resources Division. His work is in the fields of environmental regulation and law and economics, focusing on the economic analysis of environmental liability law and environmental institutions. Work relevant to the panel includes research on the development of indicators to assess the social value of ecosystems. The work's overarching goal is the development and evaluation of economically sound approaches to ecosystem evaluation, in order to make judgments regarding the relative value of different ecosystems. Dr. Boyd also recently served on the USEPA Science Advisory Board, Panel to Examine Benefits, Costs & Impacts to the Underground Storage Tanks (UST) and Resource Conservation Recovery Act (RCRA) Subtitle C Program, 2002. He receives grants through RFF from EPA, the National Oceanic and Atmospheric Administration, the Army Corps of Engineers, and other Federal Agencies. RFF also receives project money from Foundations.</p> |

| | | |
|----------------|---|--|
| Chapman, David | National Oceanic and Atmospheric Administration | <p>Mr. Chapman's expertise is in economics: Natural Resource Valuation / Non-Market Valuation, and policy: National Environmental Policy, Oil Pollution Act, CERCLA (Damage Assessment Provisions) His current position is the Chief of the Pacific Branch of NOAA's Damage Assessment Center. Mr. Chapman oversees all of the natural resource damage assessment work undertaken on the Pacific coast of the United States including Alaska and Hawaii. This work entails both economic and natural science efforts to identify injury to natural resources and ecosystems from releases of toxic chemicals and oil, and economic valuation of those injuries. In addition, he is acting senior economist for the damage assessment center, where he oversees development of new and innovative methods for valuation of natural resources. Mr. Chapman completed all Ph.D. level course work and qualifying exams at the University of California, Berkeley in the Department of Agricultural and Resource Economics. He currently has a Masters of Science in Resource and Environmental Economics. Dr. Chapman's specific area of expertise is in application of Non-Market Valuation techniques to natural resource valuation questions and placing these values in a policy relevant context. Specifically he has conducted, or participated in conducting numerous studies designed to measure the value of natural resources, ecological systems, and the services they provide to humans. He has been particularly interested in not only valuing the loss to the public from injury to natural resources, but the value of benefits that alternative restoration projects may provide. These studies have encompassed individual species, such as salmon, or birds, and habitats such as coral reef, salt marsh or mangrove. The main techniques used in the studies incorporate some variant of what is known as combined revealed and stated preference data, although a number of alternative methods have also been used. Finally, the main goal of undertaking these studies has been to place these values in a policy or legally relevant context. Mr. Chapman is currently the NOAA representative to the Federal Inter-agency Task Force on Right of Ways, where he sits on the subcommittee on valuation of right-of-ways. He is a member of the Association of Environmental and Resource Economics, and The American Economics Association. Dr. Chapman has no outstanding grants or contract support.</p> |
|----------------|---|--|

| | | |
|---------------------|--------------------------|--|
| Costanza, Robert | University of Vermont | <p>Dr. Robert Costanza is the Gund Professor of Ecological Economics and Director of the Gund Institute for Ecological Economics at the University of Vermont. Prior to moving to Vermont in August 2002, he was director of the University of Maryland Institute for Ecological Economics, and a professor in the Center for Environmental Science, at Solomons, and in the Biology Department at College Park. Dr. Costanza received his Ph.D. from the University of Florida in 1979 in systems ecology, with a minor in economics. He also has a Masters degree in Architecture and Urban and Regional Planning from the University of Florida. Dr. Costanza is co-founder and past-president of the International Society for Ecological Economics (ISEE) and was chief editor of the society's journal: Ecological Economics from its inception until 9/02. He continues to serve as founding editor of the journal. He currently serves on the editorial board of eight other international academic journals. He is currently president of the International Society for Ecosystem Health. In 1982 he was selected as a Kellogg National Fellow, in 1992 he was awarded the Society for Conservation Biology Distinguished Achievement Award and in 1993 he was selected as a Pew Scholar in Conservation and the Environment. In 1998 he was awarded the Kenneth Boulding Memorial Award for Outstanding Contributions in Ecological Economics. In 2000 he received an honorary doctorate in natural sciences from Stockholm University. He has served on the Scientific Steering Committee for the Land-Ocean Interactions in the Coastal Zone International Project Office core project of the International Geosphere-Biosphere Programme; the US EPA National Advisory Council for Environmental Policy and Technology (NACEPT); the National Research Council Board on Sustainable Development, Committee on Global Change Research; the National Research Council, Board on Global Change; the US National Committee for the Man and the Biosphere Program, and the National Marine Fisheries Service Committee on Ecosystem Principles .Dr. Costanza's research has focused on the interface between ecological and economic systems, particularly at larger temporal and spatial scales. This includes landscape level spatial simulation modeling; analysis of energy and material flows through economic and ecological systems; valuation of ecosystem services, biodiversity, and natural capital; and analysis of dysfunctional incentive systems and ways to correct them. He is the author or co-author of over 300 scientific papers (including: Costanza, R. Ecological economics: reintegrating the study of humans and nature. Ecological Applications 6:978-990 (1996); Costanza et. al. The value of the world's ecosystem services and natural capital. Nature 387:253-260 (1997) and Costanza et. al., Principles for sustainable governance of the oceans. Science 281:198-199 (1998)) and 18 books (including: Ecological economics: The science and management of sustainability (1991), Ecosystem health: new goals for environmental management (with Bryan Norton and Ben Haskell, 1992), Getting down to earth: practical applications of ecological economics (with Olman Segura, and Juan Martinez-Alier, 1996), An Introduction to Ecological Economics (with John Cumberland, Herman Daly, Robert Goodland and Richard Norgaard, 1997) and The local politics of global sustainability (with Tom Prugh and Herman Daly, 2000). His work has been cited in more than 1900 scientific articles since 1987 (according to the Science Citation Index - http://wos.isiglobalnet2.com) and more than 80 interviews and reports on his work have appeared in various media, including Newsweek, US News and World Report, the Wall Street Journal, the Economist, the New York Times, Science, Nature, National Geographic, and National Public Radio. Current grant support includes: an NSF Long Term Ecological Research (LTER) project "Human Settlements as Ecosystems: Metropolitan Baltimore from 1797-2100; an NSF grant for A web-accessible knowledge base for the integrated analysis and valuation of ecosystem service; grants from the Northeastern States Research Cooperative for "Assessing the Social and Economic Value of Ecosystem Services in the Northern Forest: A Geographic Information System (GIS) Approach to Landscape Valuation," and "Designing a New Model for Sustainable Ecological Tourism in the Northern Forest Region: an Atelier Course," and a grant from the Gund Foundation for an "Earth Shareholder's Report."</p> |
|---------------------|--------------------------|--|

| | | |
|--------------------|-----------------------------|--|
| Daniel, Terry | University of Arizona | Dr. Terry C. Daniel is Professor of Psychology and Renewable Natural Resources at the University of Arizona. He received his PhD in Psychology at the University of New Mexico in 1969. More than thirty years of sponsored research in Environmental Psychology has focused on the development and application of methods for quantifying relationships between bio-physical features of natural environments and human perception and judgment of environmental quality. Specific areas of research include: aesthetic and recreational impacts of forest management options (e.g., harvest, insect, disease and fire impacts, watershed improvement, regeneration/plantation); air pollution effects on perceived visual air quality, scenic and recreation values in national parks and wilderness areas; in-stream flow effects on perceived quality of wild and scenic rivers; effects of environmental/ecological information on public perception and acceptance of ecological restoration programs; roles for environmental data visualization and computer simulation in evaluating public environmental policies and plans; preferred safety x aesthetics x naturalness tradeoffs in fire prone forest residential areas; and public perception and acceptance of fuel reduction wildfire risk management strategies. Professor Daniel is a Fellow in the American Psychological Association (Population and Environmental Psychology), past-president and co-founder of the Resource Technology Institute, a member of the Advisory and Founding Committees for the Udal Institute for Public Policy Studies and a member of the editorial board for several international scientific journals. He has served as Director of several relevant national projects, including Are We Killing America's Forests? (broadcast television documentary for PBS, KUAT TV and USDA Forest Service), The Green Scene: Introduction to Forest Ecology and Wilderness (environmental education program, USDA Forest Service and The Wilderness Society) and Forest Health Technology: 2000 (national strategic plan for USDA Forest Service, State and Private Forestry). Recent grant and contract support sources include, USDA Forest Service, National Science Foundation, USDI National Park Service, and US EPA Science Advisory Board. |
| Farber, Stephen | University of Pittsburgh | Dr. Stephen Farber is a full professor in Graduate School of Public and International Affairs, University of Pittsburgh. He is Director of the Public and Urban Affairs program. Dr. Farber received a BA in Economics from Grinnell College and his PhD in Economics from Vanderbilt University. Dr. Farber's expertise is in the economics of ecosystems, including functional relationships and valuation. He is especially interested in coastal wetlands systems. Dr. Farber currently serves on an NAS panel investigating the Coastal 2050 Plan for Louisiana. Also, he is currently on the Proposal Review Board of Louisiana Governor's Office of Coastal Studies. Dr. Farber is also working as Co-Principal Investigator (PI) with a team of scientists at LSU on \$5 million, 5 year grant from NOAA on coastal wetlands functions and values. He just completed a contract on the economic development value of conversion of abandoned rail systems for recreation. He is also PI on \$250,000 grant from State of Pennsylvania to develop and administer a GIS training program for watershed groups. |

| | | |
|-------------------|-------------------|---|
| Finucane,Melissa | Kaiser Permanente | <p>Dr. Finucane has worked as a Research Scientist since 1997 with Drs. Paul Slovic, Donald MacGregor, Terre Satterfield, Robin Gregory, and others at Decision Research, Eugene, Oregon. In 2001, Dr. Finucane moved to Honolulu, Hawaii, to work as a Research Investigator at Kaiser Permanente's Center for Health Research. Dr. Finucane received a Master of Psychology (Clinical) and a Ph.D. in Psychology from the University of Western Australia in 1997. Dr Finucane's research interests are in human judgment and decision-making, risk perception and risk communication, and psychological factors that influence the valuation of environmental policies. Current projects focus on answering questions such as: How can narrative techniques be used to elicit and articulate values in order to engage lay stakeholders in dialogue about environmental values? How can we best help lay stakeholders think through public policy decisions? What traditional teachings by indigenous peoples are of relevance to modern biotechnology issues (particularly genetic engineering) and what traditional practices are of potential utility to modern processes of amelioration or mitigation of the perceived effects of genetically modified organisms? How do environmental values change across contexts and are some interventions really "taboo?" To what extent does research on environmental and health risk perceptions in the developed world generalize to developing world contexts? Dr. Finucane recently completed studies on: understanding and predicting public perceptions about acceptable quarantine risks; designing quality reports that support informed consumer decisions; explicating the interplay of cognition and emotion in human judgment and decision making; clarifying the role of socio-cultural values in the perception of environmental, health, and financial risks; and examining how decision processes are affected by aging-related socio-psychological changes. Blending an applied focus on real-world problems with an interest in basic psychological experimentation, Dr. Finucane's research concentrates on adapting existing paradigms and developing new methods to make the study of subtle valuation processes more tractable, thereby improving our understanding of how people make sense of complex environmental and health risk information. Dr. Finucane has received funding for her research from the National Science Foundation (Decision, Risk, and Management Sciences), the National Institutes of Health (National Institute of Aging), the Robert Wood Johnson Foundation, Health Care Financing Administration, the Foundation for Research Science and Technology (New Zealand), the Australian Research Council, and the World Health Organization. Dr. Finucane currently serves on the Scientific Advisory Committee for the Clinical Research Center of the University Hawaii and Kapi'olani Health. Recently, she has served as an expert consultant to Biosecurity Australia, a group within the Commonwealth Department of Agriculture, Fisheries, and Forestry Australia, responsible for assessing the quarantine risks associated with the importation of animals, plants, and their products. Dr. Finucane also serves as an ad hoc reviewer for the Journal of Behavioral Decision Making, Risk Analysis, and the National Science Foundation. Dr. Finucane is a member of the Society for Risk Analysis, the Society for Judgment and Decision Making, and the American and Australian Psychological Societies. Recent awards include the 1999 Australian Skeptics Eureka Prize for Critical Thinking and the 2002 Society for Risk Analysis Best Paper Award.</p> |
| Freeman,A. Myrick | Bowdoin College | <p>Dr. Myrick Freeman III is the William D. Shipman Research Professor of Economics at Bowdoin College. In 2000 he retired from teaching after 35 years. Freeman received his Ph.D. in economics from the University of Washington in 1965. He has been on the faculty at Bowdoin since that time and has served as chair of the economics department and Director of the Environmental Studies Program there. He has also held appointments as Visiting College Professor at the University of Washington and Robert M. La Follette Distinguished Visiting Professor at the University of Wisconsin-Madison and as a Senior Fellow at Resources for the Future, a research organization in Washington, DC. Freeman's principal research interests are in the areas of applied welfare economics, benefit-cost analysis, and risk management as applied to environmental and resource management issues. Much of his work has been devoted to the development of models and techniques for estimating the welfare effects of environmental changes such as the benefits of controlling pollution and the damages to natural resources due to releases of chemicals into the environment. He has authored or co-authored eight books including Air and Water Pollution Control: A Benefit-Cost Assessment, and The Measurement of Environmental and Resource Values: Theory and Methods. He has also published more than 70 articles and papers in academic journals and edited collections. Freeman has been a member of the Board on Toxicology and Environmental Health Hazards of the National Academy of Sciences and has served as a member of the Advisory Council on Clean Air Compliance Analysis, the Clean Air Science Advisory Committee, and the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency. Most recently, he chaired the EPA SAB Review Panel on UST/RCRA Benefits, Costs, and Impacts Assessment.</p> |

| | | |
|----------------------|--------------------------|--|
| Grasso, Domenico | Smith College | Dr. Domenico Grasso is the Rosemary Bradford Hewlett Professor and Founding Director of the Picker Engineering Program at Smith College and holds adjunct faculty appointments at the Universities of Connecticut and Massachusetts and Yale University. The Smith Engineering Program, the first at a women's college in the United States, attempts to educate engineers in a holistic approach (inter alia scientific, economic, and social) to technological decision-making. An environmental engineer who studies the ultimate fate of contaminants in the environment and develops new techniques to destroy or otherwise reduce the risks associated with these contaminants to human health or natural resources, he focuses on molecular scale processes that underlie nature and behavior of contaminants in environmental systems. He holds a B.Sc. from Worcester Polytechnic Institute, an M.S. from Purdue University and a Ph.D. from The University of Michigan. He is a registered Professional Engineer in the states of Connecticut and Texas, and was Professor and Head of Department in Civil & Environmental Engineering at the University of Connecticut prior to joining Smith. He has been a Visiting Scholar at University of California Berkeley, a NATO Fellow, and an Invited Technical Expert to the United Nations Industrial Development Organization in Vienna Austria. He is currently a member of the United States Environmental Protection Agency Science Advisory Board, Past-President of the Association of Environmental Engineering & Science Professors, and Editor-in-Chief of Environmental Engineering Science. He has authored more than 100 technical papers & reports, including four chapters and two books. Federal, state and industrial organizations have supported his research work. |
| Grossman, Dennis | NatureServe | Dr. Dennis H. Grossman is the Vice President for Science at NatureServe, a non-profit conservation organization working throughout the Western Hemisphere. He holds a B.S. in ecology from the University of Wisconsin (1976), an M.S. in Plant Ecology from the University of Wisconsin (1982), and a Ph.D. in Plant Ecology from the University of Hawaii (1991). Prior to working at the Conservancy, Dr. Grossman was Chief Ecologist at The Nature Conservancy for 12 years after working as a Research Fellow at the Environment and Policy Institute of the East-West Center in Honolulu. Dr. Grossman has worked extensively with vegetation science, ecology, and conservation biology projects across the Upper Midwest, California, and Hawaii as well as in India and Indonesia. These projects include the inventory, data management and analysis, classification, mapping, conservation ranking and conservation planning for terrestrial, freshwater and coastal-marine communities. Dr. Grossman was a principal developer of the National Vegetation Classification System for the United States that is currently endorsed as an inter-agency standard by the Federal Geographic Data Committee. He has published numerous articles on ecological classification and conservation and currently manages numerous projects associated with the implementation of these methods. Dr. Grossman is a member of the Ecological Society of America and the Society for Conservation Biology, and serves Vegetation Subcommittee of the Federal Geographic Data Committee and on the executive committee of the ESA Panel for Vegetation Classification. Grant and contract support comes primarily from federal agencies, private foundations and the National Science Foundation. |
| Hanemann, W. Michael | University of California | Dr. W. Michael Hanemann is Chancellor's Professor in the Department of Agricultural and Resource Economics and Goldman School of Public Policy at the University of California, Berkeley. Dr. Hanemann's research interests include non-market valuation, environmental economics and policy, water pricing and management, demand modeling for market research and policy design, the economics of irreversibility and adaptive management, and welfare economics. Dr. Hanemann's recent publications have addressed valuation and management of tropical forests, temporal reliability of estimates from contingent valuation, referendum design and contingent valuation, the economic theory of Willingness To Pay and Willingness To Accept, and the statistical analysis of discrete-response, welfare analysis with discrete choice models. Dr. Hanemann was educated at Oxford University (B.A.), the London School of Economics (M. Sc.), Harvard University, (M.A. in Public Finance and Decision Theory and Harvard University (Ph.D. in Economics). |

| | | |
|---------------------|---|---|
| Harrison, Keith | Michigan Environmental Science Board | Mr. Keith G. Harrison has been employed with the state of Michigan for 23 years. For the last 11 years, he has held two concurrent positions within state government. He has served from 1992 -1997 as the Director of, initially, the Michigan Department of Management and Budget's Environmental Administration Division and, later (since 1997) due to interdepartmental transfer, the Michigan Department of Environmental Quality's Office of Special Projects (OSP). He also has served since 1992 as the Executive Director of the Michigan Environmental Science Board. Concurrent with the two positions above, he currently is assigned as a consultant to the U.S. Environmental Protection Agency Science Advisory Board's Ecological Processes and Effect Committee, and from May to October 2001, he served as the Acting Director of the Michigan Office of the Great Lakes. Previous positions held within state government include two years as Environmental Affairs Manager for the Michigan Department of Corrections; five years as Senior Environmental Specialist for the Michigan Toxic Substance Control Commission, and four years with the Michigan Department of Public Health. Prior to state service, Mr. Harrison was employed as a Senior Ecologist with an environmental engineering firm; Chief Environmental Planner for a regional planning agency; and Sanitarian with a local county health department. Mr. Harrison obtained his Bachelor of Science degree in 1972 in fisheries and wildlife biology from Michigan State University and a Master of Arts degree in 1974 in biology (ecology) from Western Michigan University. He has been licensed since 1978 as a Registered Sanitarian and Registered Environmental Health Specialist, and, since 1981, has been certified as an Ecologist by the Ecological Society of America. Mr. Harrison's professional research and work have resulted in over 80 governmental and professional scientific publications addressing a wide variety of environmental, environmental health, natural history, and natural resources management topics. His areas of expertise are ecology, environmental science, and environmental health science. He has recently served as Michigan's representative to the Great Lakes Commission's Project Management Team on the development of a decision tool to review the use and management of Great Lakes surface and groundwater and as invited expert peer reviewer for the USEPA its Environmental Indicators Initiative for the United States. |
| Heal, Geoffrey | Columbia Univeristy | Dr. Geoffrey Heal is the Paul Garrett Professor of Public Policy and Corporate Responsibility and Professor of Economics and Finance at Columbia Business School and Professor in the School of International and Public Affairs. He is a member of the Executive Committee of the Columbia Earth Institute. Dr. Heal earned a First Class Honors Degree, Cambridge University, U.K. Major in Economics and Minor in Physics (1966). He completed his graduate studies in Economics and Mathematics at University of California, Berkeley, 1966-67. He earned his PhD in Economics at Cambridge University (1968). Dr. Heal's area of expertise and research include: Economic theory, General equilibrium theory, Economics of insurance and reinsurance and of risk-management, Economics of natural and environmental resources, Interface between economics and the natural sciences with respect to environmental issues. He has served as Chair of the National Academy – National Research Council Committee on the Valuation of the Services of Aquatic and Related Terrestrial Ecosystems. He is also the Commissioner of the Pews Ocean Commission, Director of the Union of Concerned Scientists and the Beijer Institute of Ecology and Economics of the Royal Swedish Academy of Sciences and a member of the President's Committee on Science and Technology (PCAST) Panel on Biodiversity and Ecosystems. Dr. Heal is also a member and Ex-President, Association of Environmental and Natural Resource Economists. Recent grants funding has come from Lockheed Martin for research on the management of discrete interdependent risks. |
| Holliday, Andrew | National Association of Home Builders | Dr. Holliday is currently Housing Policy Economist at the National Association of Home Builders (NAHB) in Washington, DC. He received his Ph.D. in Economics from the University of Virginia in 1996, following an M.A. from the University of Wisconsin-Madison in 1986, and a J.D. with honors from IIT/Chicago-Kent College of Law in 1973. His Humanities BA is from Michigan State University. He has published a book on antitrust enforcement and presented three papers on that subject; he has also authored numerous studies of local economies. With Elliot Eisenberg, Ph.D., he has published two papers on the behavior of house prices. Dr. Holliday's primary research focus is on the economic impact of regulations on local and regional economies, particularly environmental and land use regulations. His analysis is informed by a solid understanding of the economics of non-marketed resources, including hedonic, contingent valuation, and general equilibrium models. He drafted NAHB's economic comments on the Effluent Limitation Guidelines for the Construction and Development Category, and he guided the production of NAHB's proposal for the economic analysis of critical habitat designation under the Endangered Species Act, coordinating the work of economists, lawyers, biologists, and policy experts. |

| | | |
|--------------------|------------------------------|---|
| Huggett, Robert | Michigan State University | Dr. Robert J. Huggett was appointed Vice President for Research and Graduate Studies at Michigan State University in June 1997. Before that, he was Assistant Administrator for Research and Development at the U.S. Environmental Protection Agency from 1994 to 1997. He is a Professor Emeritus at the College of William and Mary in Williamsburg, VA, where he was a faculty member for 20 years. During those years he also served as Chair of the Department of Environmental Science and Chair of the Department of Chemical Oceanography in the School of Marine Science and Head of the Division of Chemistry and Toxicology. He earned an M.S. in Marine Chemistry from the Scripps Institute of Oceanography at the University of California at San Diego and a Ph.D. in Marine Science at William and Mary. As a scholar, Dr. Huggett has studied the fate and effects of hazardous chemicals in aquatic environments, publishing more than 80 articles. His work has had important effects on international environmental policy and he has been very active in research and policy organizations at the national and international level. While he was at the EPA, he served as Vice Chair of the Committee on Environment and Natural Resources and Chair of the Subcommittee on toxic substances and solid wastes, both of the White House Office of Science and Technology Policy. He also founded the EPA 100 million dollar per year STAR Competitive Research grants program and the 3 million dollar per year STAR Graduate Fellowship program. He presently serves on the Board Research Committee of the American Chemistry Council and on the Board on Environmental Studies and Toxicology of the National Research Council, National Academy of Sciences. |
| Kramer, Randall | Duke University | Randall A. Kramer is a professor of resource and environmental economics in the Nicholas School of the Environment and the Department of Economics at Duke University. Before coming to Duke in 1988, he taught in the Department of Agricultural Economics at Virginia Polytechnic Institute and State University. He has also held visiting positions at IUCN-The World Conservation Union, the Economic Growth Center at Yale University, and the Indonesian Ministry of Forestry. He has served as a consultant to the World Bank, Asian Development Bank, and other international organizations. He received his PhD from the Department of Agricultural Economics at the University of California Davis in 1980. Kramer's research has focused on ecosystem valuation, water resource economics, and the economics of biodiversity and natural resource management in developing countries. He has published many journal articles and is co-editor of Last Stand: Protected Areas and the Defense of Tropical Biodiversity, Oxford University Press. He has conducted a number of studies related to ecosystem valuation including studies of global rain forest protection, protected area establishment in Madagascar, wetlands restoration in North Carolina, national parks benefits in Indonesia, Southern-Appalachian spruce-fir ecosystem protection, restoration of woodpecker habitat, and protection of water quality. He is currently working on two projects related to ecosystem valuation. One study is looking at the health benefits of preventing deforestation with an emphasis on malaria. The other study is a meta-analysis of the value of statistical life. He has served on advisory panels for the US Department of Agriculture, the State of North Carolina, the Nature Conservancy, the World Conservation Union, and the World Bank. He has served on the Board of Directors for the Association of Environmental and Resource Economists and the Coral Reef Alliance. Recent contract and grant support has come from the Asian Development Bank, MacArthur Foundation, USEPA, US Forest Service, and USDA. |
| Lackner, Klaus | Columbia University | Dr. Klaus S. Lackner joined the faculty of Columbia University in 2001, where he is now the Ewing-Worzel Professor of Geophysics in the Department of Earth and Environmental Engineering. He received his Ph.D. in 1978 in theoretical physics from the University of Heidelberg, Germany. He held postdoctoral positions at the California Institute of Technology and the Stanford Linear Accelerator Center before joining Los Alamos National Laboratory in 1983. He has been a scientist in the Theoretical Division for much of that time, but also has been part of the Laboratory's upper management. He held several positions among them Acting Associate Laboratory Director for Strategic and Supporting Research, which represents roughly a third of Los Alamos National Laboratory. Klaus Lackner's scientific career started in the phenomenology of weakly interacting particles. Later searching for quarks, he and George Zweig developed the chemistry of atoms with fractional nuclear charge. He is still participating in matter searches for particles with a non-integer charge in an experiment conducted at Stanford by Martin Perl and his group. After joining Los Alamos National Laboratory, Klaus Lackner became involved in hydrodynamic work and fusion related research. In recent years, he has published on the behavior of high explosives, novel approaches to inertial confinement fusion, and numerical algorithms. His interest in self-replicating machine systems has been recognized by Discover Magazine as one of seven ideas that could change the world. Presently he is developing innovative approaches to energy issues of the future. He has been instrumental in forming ZECA, the Zero Emission Coal Alliance, which is an industry-led effort to develop coal power with zero emissions to the atmosphere. His recent work is on environmentally acceptable technologies for the use of fossil fuels. |

| | | |
|------------------------|---------------------------------|--|
| MacLean, Douglas E. | University of North Carolina | Dr. Douglas MacLean joined the faculty of the University of North Carolina in 2001 as Professor of Philosophy. He is also a faculty fellow of the Carolina Environmental Project and a member of its Faculty Advisory Committee. He was educated at Stanford University and at Yale University, where he received his Ph.D. in philosophy. His previous positions include research scholar and director of the Institute of Philosophy and Public Policy at the School of Public Affairs of the University of Maryland, professor and chair of the Department of Philosophy at the University of Maryland at Baltimore County, and from 1999 - 2001 he was the Distinguished Chair in Ethics at the U.S. Naval Academy. His research interests are in ethics and decision theory, political philosophy, military ethics and philosophical issues in public policy. His research focuses primarily on philosophical issues in risk, technology, and the environment, and the philosophical implications of the psychology and culture of decision-making. He has written extensively on these topics. Dr. MacLean has also served as an advisor or consultant to a number of government agencies, including: the National Science Foundation, the National Endowment for the Humanities, the US Environmental Protection Agency, the US Congress Office of Technology Assessment, the US Nuclear Regulatory Commission, and the Departments of Energy and Agriculture. |
| Meyer, Joseph S. | University of Wyoming | Dr. Joseph Meyer is an Associate Professor of Zoology and Physiology at the University of Wyoming. He received a B.S. in Chemical Engineering from Lehigh University in 1973 and a Ph.D. in Zoology and Physiology from the University of Wyoming in 1986. Prior to this position, he taught at Humboldt State University from 1990 through 1993, and conducted postdoctoral research in Switzerland from 1987 to 1989. Dr. Meyer's educational and research backgrounds include population biology, aqueous biogeochemistry, and the fate and effects of nutrients and pollutants in aquatic systems. Most recently, he has been involved in development of the biotic ligand model for predicting the acute toxicity of metals to aquatic biota. Currently, Dr. Meyer serves on the Boron Ecotoxicology Advisory Group (BEAG) for U.S. Borax, Inc. From 1998 through 2002, he served on the Health and Ecological Effects Subcommittee (HEES) of the U.S. EPA Science Advisory Board's Advisory Council on Clean Air Compliance Analysis (ACCACA). Prior to that, he served on Environment Canada's Environmental Resource Group for the Assessment of Chloramine under the Canadian Environmental Protection Act (1996-1999); on Advisory Council on Clean Air Compliance Analysis's Physical Effects Review Subcommittee (PERS) (1994-1997); on the Electric Power Research Institute's Water Toxics Advisory Committee (1993-1996); and on a U.S. Department of Energy review panel addressing damages and benefits of several fuel cycles (1992-1993). Dr. Meyer is a member of the Society of Environmental Toxicology and Chemistry (SETAC), for which he currently serves as a member of the Board of Directors of the Rocky Mountain Chapter. Current and recent funding for his research has been provided by the following agencies, organizations, foundations, and individuals: U.S. EPA, U.S. Geological Survey, U.S. Forest Service, U.S. Fish and Wildlife Service, Wyoming Department of Environmental Quality, Water Environment Research Foundation, International Copper Association, International Lead Zinc Research Organization, Nickel Producers Environmental Research Association, Stratus Consulting, Tucker Foundation, and Beatrice Gallatin Beuf. Additionally, he is a consultant to the U.S. EPA regarding revision of the aquatic life criteria for copper, and recently provided consulting services to U.S. Borax, Inc. |

| | | |
|-------------------|------------------------|---|
| Mooney, Harold | Stanford University | <p>Dr. Harold A. Mooney holds the Paul S. Achilles Professorship in Environmental Biology at Stanford University. He received his PhD from Duke University in 1960 and was an Associate Professor at the University of California in Los Angeles until 1968 when he came to Stanford. His research on the carbon balance of plants has provided a major theoretical framework for ecophysiological studies, and has been instrumental in the incorporation of physiological understanding to studies of ecosystem processes. This work has also led to several lines of research on the nature of interactions of plants with their biotic environment, and has provided an objective measure for evaluating many of the current theories of plant-animal interaction. He has demonstrated that convergent evolution takes place in the properties of different ecosystems that are subject to comparable climates, and has pioneered in the study of the allocation of resources in plants. He has worked in many of Earth's diverse ecosystems, including the arctic-alpine, the mediterranean-climate scrub and grasslands, tropical wet and dry forests, and the deserts of the world. He is currently engaged in research on the impacts of global change on terrestrial ecosystems, especially on productivity and biodiversity, and is also examining those factors that promote the invasions of non-indigenous plant species. In recent years he has been involved in organizing international activities through which he brought together people from many diverse disciplines to address topics that promise to contribute substantially to the advancement and integration of ecology. Most recent of these are the programs on A Global Strategy for Invasive Species and on the Ecosystem Function of Biodiversity, both sponsored by the Scientific Committee on Problems of the Environment (SCOPE). He worked to develop a global program on biodiversity science (Diversitas) and its associated project, the International Biodiversity Observation Year (IBOY). He served on the Scientific Steering Committee of the Global Change and Terrestrial Ecosystems (GCTE) program and was Chair of the U.S. Global Change Committee. He has recently served as Secretary General of the International Council for Science (ICSU). Currently he is a Scientific Panel co-Chair for the Millennium Ecosystem Assessment, a program devoted to strengthening capacity to manage ecosystems sustainably for human well-being. Through these efforts and his lengthy publication record of over 400 scientific books, papers, and articles, he has developed bridges between physiological ecology and other areas of ecology, and he has explored the contributions that ecologists can make toward resolving the growing problems of global habitability. He has served on many editorial boards for ecological journals, and on advisory committees of many funding agencies, universities, and national and international agencies. He served as President of the Ecological Society from 1988-89, President of the American Institute of Biological Sciences in 1993, and is currently Secretary General of the International Council for Science. He is an editor on Trends in Ecology and Evolution, Environment and Pollution, Global Change Biology, Global Environmental Research, Ecosystems, Journal of Mediterranean Ecology, and Biological Invasions, as well as Series editor of Physiological Ecology (Academic Press), and Ecological Studies (Springer-Verlag). Among his many honors, he was elected to the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Philosophical Society. He has received the Eminent Ecologist Award and the Mercer Award of the Ecological Society of America, a Humboldt Senior Distinguished U.S. Scientist Award, the Max Planck Research Award, and the Ecology Institute Prize for Terrestrial Ecology, the Nevada Medal Award and the Blue Planet Prize. He worked in Chile and France as a National Science Foundation Senior Postdoctoral Fellow and in Australia and Africa as a Guggenheim Fellow. He was chosen as a Fellow of the American Association for the Advancement of Science and a foreign member of the Russian Academy of Sciences. His recent research funding includes the following: Whole-Ecosystem Responses to Multi-Factor GlobalChange: Long-Term Responses in the Jasper Ridge Global Change Experiment -- Packard Foundation; The Jasper Ridge Global Change Experiment: Biocomplexity in Ecosystem Responses to Long-Term Environmental Changes -- National Science Foundation; Root Distribution, Phenology, and Carbon Balance -- Department of Energy/National Institute for Global Environmental Change; Ecological Problems at Intermediate Scales of Space and Time: An Integrated Training Program -- Mellon Foundation. He is also a member of the Ecological Society of America, the British Ecological Society, Sigma Xi, and the American Institute of Biological Sciences.</p> |
|-------------------|------------------------|---|

| | | |
|-------------------|--------------------------------------|---|
| Norgaard, Richard | University of California at Berkeley | Dr. Richard B. Norgaard is Professor of Energy and Resources and of Agricultural and Resource Economics at the University of California at Berkeley. Professor Norgaard was a Project Specialist with the Ford Foundation in Brazil (1978 and 79) where he worked on the environmental problems of Amazon development. Among a variety of professional assignments around the world, he served on a UNDP economic assessment team in Vietnam (1989) and as a visiting scholar at the World Bank (1991). Professor Norgaard currently holds the office of Past President of the International Society for Ecological Economics (2002-3) after serving as its President (1998-2001). He also serves on the Board of Directors of the American Institute of Biological Sciences, on the Board of Directors of Redefining Progress, an NGO he co-founded, and on the Board of Directors of EcoEquity. He has served (1992-98) on the U.S. Committee of the Scientific Committee on Problems of the Environment (SCOPE) and numerous committees of the National Research Council and former Office of Technology Assessment. Professor Norgaard currently contributes to the fields of environmental epistemology (supported by an NSF Biocomplexity Grant), ecological economics, and neoclassical environmental economics. His research currently addresses how we understand complex, global issues with additional work being undertaken in the area of trade and the environment. His research over three decades has been wide ranging and has appeared in the journals and books of a number of disciplines beyond economics. Dr. Norgaard holds a PhD in Economics from the University of Chicago (1971), an MS in Agricultural Economics with a minor in water resources engineering from Oregon State University (1967), and an AB in Economics from the University of California at Berkeley (1965). |
| Opaluch, James | University of Rhode Island | Dr James Opaluch is a professor of Environmental Economics at the University of Rhode Island. He received a Ph.D. in Economics and Masters Degree in Statistics both from the University of California, Berkeley. Dr. Opaluch has been actively involved in issues related to natural resource and environmental policy for many years. Dr. Opaluch is an internationally recognized expert in natural resource valuation and damage assessment, and has served as an expert witness in over 20 major natural resource damage assessment cases. Other projects include development of the original Type A model for assessing natural resource damages under CERCLA (incorporated in Federal Regulations); evaluation of the potential social costs of the national five-year offshore oil and gas leasing program; comprehensive assessments of proposed national environmental regulations; development of a methodology for landfill siting for the state of Rhode Island, and estimating uses and values of the Peconic Estuary System as part of the National Estuaries Program. Dr Opaluch was recently invited to serve on the United Nations Environmental Program's Working Group of Consultative Experts to provide advice and training to policy professionals throughout the world. Dr. Opaluch has served on a number of national committees, including National Academy of Science panel to assess the OCS Environmental Studies Program, National Academy of Science Panel on PCB Contamination Sites, National Academy of Science committee on wetlands productivity, National Academy of Science committees to assess the adequacy of environmental information on Georges Bank, South Florida, California and Alaska, the U.S. Minerals Management Service Social Science Research Panel, and Governing Board Associate of the American Agricultural Economics Association. Dr Opaluch has served in a variety of professional capacities, including Associate Editor of the American Journal of Agricultural Economics, President of the Northeast Agricultural and Resource Economics Association, Vice President of the Association of Environmental and Resource Economists, Associate Editor of the American Journal of Agricultural Economics, Associate Editor of the Journal of Environmental Economics and Management, Editorial Board of the Agricultural and Resource Economics Review and Director of the Northeast Agricultural and Resource Economics Association. Dr. Opaluch been recipient of various awards, including Research Scientist of the Year at the University of Rhode Island, College of Resource Development, Outstanding Service Award from the Northeast Association of Agricultural and Resource Economics, Outstanding Dissertation Award of the American Agricultural Economics Association and has served as advisor to four Theses that were winners of the American Agricultural Economics Association thesis awards. Dr. Opaluch as received research support from many private corporations and federal agencies, including the National Science Foundation, the U.S. Environmental Protection Agency, the U.S. Department of the Interior, and the National Oceanic and Atmospheric Administration. Dr. Opaluch has authored or co-authored numerous papers in refereed journals, including the Journal of Environmental Economics and Management, the Rand Journal of Economics, American Journal of Agricultural Economics, Land Economics, Applied Economics, Coastal Management, Natural Resource Journal, Marine Resource Economics, and Oil and Chemical Pollution and has written many technical reports and chapters in books. His publications have made important contributions to basic knowledge and to public policy applications on issues of national, international and global significance. |

| | | |
|--------------------|--------------------------------|--|
| Pendleton, Linwood | University of Wyoming | Dr. Linwood H. Pendleton is an Assistant Professor of Economics and Finance at the University of Wyoming. In 2001 he (along with several colleagues) implemented a yearlong telephone panel survey and an exhaustive inventory of beach attributes for three southern California coastal counties. Now they are developing panel random utility models of beach choice in the face of temporally varying water quality hazards. The research is joint with Michael Hanemann of the University of California at Berkeley and David Layton of the University of Washington. Understanding the Links Between Consumer Demand and Regulatory Action: Mechanisms for Reducing Toxic Emissions in the United States and Abroad This research, joint with Tisha Emerson, examines the ways in which changing consumer demand for environmental quality can lead to improvements (abatement) in industrial pollution. The research focuses a) on the role of toxicity and environmental disamenity in determining toxic releases in the United States and b) on the role of information asymmetries and the reduction of pollution internationally. Regulation and Risk: Coastal Fisheries is a research program that looks at the ways in which regulations, especially those that are motivated by biological management goals, impact the economic and risk taking behavior of commercial fishermen. Regional Studies of the Coastal Ocean Observing System is work, joint with Hauke Kite-Powell, Charles Colgan, and others, that attempts to find the potential economic value of major improvements in the collection, modeling and dissemination of oceanographic data from remote and local coastal ocean observing systems. National Ocean Economics Project is a research program, lead by Judith Kildow and Charles Colgan that is working to build a system of national economic accounts to monitor the ecological and economic health of the coastal sector. Dr. Pendleton's work on the project involves the development of theoretical and applied methods to assess and aggregate national data on the economic values of non-market coastal goods and services. |
| Pitelka, Louis F. | University System of Maryland, | Dr. Louis Pitelka is Director and Professor at the Appalachian Laboratory of the University of Maryland Center for Environmental Science. Research at the Appalachian Laboratory covers terrestrial and freshwater ecology with an emphasis on landscape and watershed ecology. Dr. Pitelka received a B.S. in zoology from the University of California at Davis and a Ph.D. in biological sciences from Stanford University. Before moving to the University of Maryland in 1996, he held positions at Bates College, the National Science Foundation, and the Electric Power Research Institute. Dr. Pitelka's areas of expertise include plant ecology, ecosystem ecology, and global change. His research activities have ranged from studies of the population biology of forest understory herbs to the responses of terrestrial ecosystems to climate change. Dr. Pitelka has served on numerous planning, coordinating, and review committees for both national and international organizations. He currently is the Chair of the Global Change and Terrestrial Ecosystems (GCTE) core project of the International Geosphere-Biosphere Program (IGBP), is a member of the AIBS Working Group (funded by NSF) on Infrastructure for Biology at Regional to Continental Scales, and serves on the DOE Biological and Environmental Research Advisory Committee. He recently completed a five-year term as a member of the Design Committee for The State of the Nation's Ecosystems, a project of the H. John Heinz Center, and served eight years on the Science Advisory Committee for the EPA-funded Center for Ecological Health Research at the University of California, Davis. He is the current President of the Association of Ecosystem Research Centers. Dr. Pitelka recently completed a six-year term as Editor-in-Chief of Ecological Applications, and now serves on the editorial boards of Oecologia and Frontiers in Ecology and the Environment. He currently manages a grant from the Andrew W. Mellon Foundation. Other recent sources of funding (mostly for workshops) have included the U.S. Forest Service, DOE, and the Electric Power Research Institute. |
| Poe, Gregory | Cornell University | Dr. Gregory L. Poe is an Associate Professor in the Department of Applied Economics and Management at Cornell University, and a member of the Graduate Specializations of Environmental and Resource Economics, Public Policy Analysis, and Water Resources. He joined the Cornell faculty after serving in the Peace Corps and earning his M.S. (Agricultural Economics) and Ph.D. (Natural Resource Economics) from the University of Wisconsin--Madison. His present appointment involves research, teaching, and extension in environmental policy, and his corresponding research and outreach program focuses on applied welfare economics, non-market valuation, experimental economics, and non-point source pollution policy. Other areas of research have included fisheries management in developing countries, geographical information systems, erosion economics, and technical efficiencies in agricultural production. While on sabbatical leave he served as a Visiting Fellow at the Jackson Environmental Institute (JEI) and the Centre for Economic and Social Research on the Global Environment (CSERGE) at the University of East Anglia, UK, working with an EU funded project valuing air pollution damages to remote mountain lake ecosystems in the UK and Europe. Professor Poe has served as a Review Panel Member for the EPA/Science Advisory Board, UST /RCRA (Subtitle C) Benefits, Costs, and Impacts, 2002. His current research is funded by the NSF (Ecosystem Values and Surface Water Protection: Basic Research on the Contingent Valuation Method, SES-109667), the US EPA STAR Program (An Experimental Economics Examination of Incentive Mechanisms for Reducing Ambient Water Pollution Levels from Agricultural Non-Point Source Pollution, # pending), and USDA Hatch and Regional Research Project funds. |

| | | |
|------------------|---|---|
| Polasky, Stephen | University of Minnesota | Dr. Stephen Polasky holds the Fesler-Lampert Chair in Ecological/Environmental Economics at the University of Minnesota. He is a faculty member of the Department of Applied Economics and of the Department of Ecology, Evolution and Behavior. He is also co-director of Graduate Studies for the Conservation Biology Program. He received his Ph.D. in economics from the University of Michigan in 1986. Prior to coming to Minnesota he held faculty positions in the Department of Agricultural and Resource Economics at Oregon State University and the Department of Economics at Boston College. He was the senior staff economist for environment and resources for the President's Council of Economic Advisers 1998-1999. He served as associate editor and co-editor for the Journal of Environmental Economics and Management from 1996 to 2002. He is currently serving as a member of the Environmental Economics Advisory Committee of U.S. EPA's Science Advisory Board, as a member on a National Research Council Committee on Assessing and Valuing Services of Aquatic and Related Terrestrial Ecosystems, and as Co-Chair for Core Project 3: Developing the Science of Conservation and Sustainable Use of Biodiversity for DIVERSITAS. His research interests include biodiversity conservation and endangered species policy, integrating ecological and economic analysis, game theoretic analysis of natural resource use, common property resources, and environmental regulation. He recently edited a book entitled The Economics of Biodiversity Conservation. Since 2000 he has received grant support from the USDA Forest Service for two cooperative agreements (Predicting ecological and social impacts of riparian landuse in a north central lakescape; Open space and property values: an urban economics model with application to the Twin Cities Region), and support from two research grants with US EPA (Land management with biological and economic objectives; Developing methods and tools for watershed restoration design, implementation, and assessment in the Willamette Basin, Oregon). |
| Richels, Richard | Electric Power Research Institute | Dr. Richard Richels directs global climate change research at the Electric Power Research Institute (EPRI) in Palo Alto, California. In previous assignments, he directed EPRI's energy analysis, environmental risk, and utility planning research activities. He has served on a number of national and international advisory panels, including committees of the Department of Energy, the Environmental Protection Agency, and the National Research Council. He has served as an expert witness at the Department of Energy's hearings on the National Energy Strategy and testified at Congressional hearings on priorities in global climate change research. In addition, Dr. Richels has served as a lead author for the Intergovernmental Panel on Climate Change's (IPCC) Second and Third Scientific Assessments and served on the Synthesis Team for the U.S. National Assessment of Climate Change Impacts on the United States. He currently serves on the Scientific Steering Committee for the US Carbon Cycle Program and the Advisory Committee for Princeton University Carbon Mitigation Initiative. Dr. Richels is a co-author of Buying Greenhouse Insurance - the Economic Costs of CO2 Emission Limits (with Alan Manne). He has written a number of papers on operations research, energy and environmental policy, and energy research and development. He has served as Editor of the Energy, Environment and National Resources area of the Operations Research Journal. He has also served on the Board of Editors of The Energy Journal and the Journal of Applied Stochastic Models and Data Analysis. His current research interests are related to the issues of induced technical change, assessing the costs and benefits of climate change management proposals, identifying the potential impacts of climate change and how they may vary with the choice of mitigation and adaptation initiatives, and the valuation of market and non-market impacts. Dr. Richels received a B.S. degree in Physics from the College of William and Mary in 1968. He was awarded an M.S. degree in 1973 and a Ph.D. degree in 1976 from Harvard University's Division of Applied Sciences where he concentrated in Decision Sciences. While at Harvard, he was a member of the Energy and Environmental Policy Center. |
| Risser, Paul G . | Oklahoma State Regents for Higher Education | Dr. Risser currently serves as Chancellor of the Oklahoma Higher Education System. Previously he served as President of Oregon State University (7 years), President of Miami University (3) years, and 6 years as Vice President for research and then Provost at the University of New Mexico. His bachelor's degree in biology is from Grinnell College, and his M.S. and Ph.D. in botany and soils is from the University of Wisconsin. He is a fellow of the AAAS and of the American Academy of Arts and Sciences. Dr. Risser's research has focused on ecosystem analysis, ranging from the physiological ecology of single species to mathematical models of entire ecosystems, especially as they respond to management. Dr. Risser has chaired and served on numerous committees for the NSF, NRC, and other state and federal agencies. He is the past president of the Ecological Society of America, American Institute of Biological Sciences, and of the Southwestern Association of Naturalists. His research funding has originated from numerous federal, state and private sources, including NSF, EPA, and DOE. He is not currently funded by any federal agency. |

| | | |
|----------------------------|--------------------------------------|--|
| <p>Rolston, Holmes</p> | <p>Colorado State University</p> | <p>Dr. Holmes Rolston is University Distinguished Professor of philosophy at Colorado State University. He has written six books, acclaimed in critical notice in both professional journals and the national press. The more recent are: <i>Genes, Genesis and God</i> (Cambridge University Press, 1999), <i>Science and Religion: A Critical Survey</i> (Random House, McGraw Hill, Harcourt Brace), <i>Philosophy Gone Wild</i> (Prometheus Books) <i>Environmental Ethics</i> (Temple University Press), and <i>Conserving Natural Value</i> (Columbia University Press). He has edited <i>Biology, Ethics, and the Origins of Life</i> (Jones and Bartlett, Wadsworth). He has written chapters in eighty other books and over one hundred articles. Rolston has spoken as distinguished lecturer on all seven continents. He gave the opening conference address to the Royal Institute of Philosophy annual conference, Cardiff, Wales, 1993. He was Distinguished Lecturer in Beijing, China, at the invitation of the Chinese Academy of Social Sciences, Institute of Philosophy. He participated by invitation in pre-conferences and the United Nations Conference on Environment and Development in Rio de Janeiro, 1992, where he was an official observer. He spoke at the World Congress of Philosophy, Moscow, 1993, and again in Boston, 1998. Rolston was distinguished lecturer at the 28th Nobel Conference, 1992, at Gustavus Adolphus College, Minnesota, authorized by the Nobel Foundation, Stockholm. The American Philosophical Association named him a distinguished speaker at their Pacific Division, with a three hour panel devoted to his work. He was awarded the Distinguished Visiting Russell Fellow at the Center for Theology and the Natural Sciences, Graduate Theological Union, Berkeley. In 1991, a research conference was held in Berkeley devoted to his work, and the results have been published. He was Distinguished Scholar leading a National Endowment for the Humanities colloquium at North Idaho College. He delivered the Gifford Lectures, University of Edinburgh, 1997/1998. He was awarded a Doctor of Letters (D. Litt.), Davidson College, 2002. Rolston has been an invited lecturer at Yale University, at the University of Hawaii at Manoa, at Georgetown University, at Vanderbilt University, Ohio State University, the University of Georgia, the University of Colorado Law School, the University of Oregon Law School, California State University, Washington State University, Pennsylvania State University, Harvard University, Yale University Law School, Washington and Lee University, the University of Manchester, Oxford University, the University of Bergen, the University of Oslo, the University of Helsinki, Uppsala University, Aarhus University, Odense University, Bucharest University, Hanazono College, Kyoto University in Japan, the University of Guelph, at four Chinese and eleven Australian universities. He spoke at the All India Institute of Medical Sciences, New Delhi, and at the National Law School of India University, Bangalore. He has been a guest lecturer for the Council for Philosophical Studies. In July-August 1995 he was Visiting Lecturer at the University of Stellenbosch, South Africa. He was a plenary speaker at the 1994 40th Anniversary Conference of the Society for the Protection of Nature in Israel. Earlier, Rolston was named Visiting Scholar at the Harvard University Center for the Study of World Religions. Rolston was named by Macmillan Company the area editor for environmental ethics in the <i>Encyclopedia of Bioethics</i>, Edition II. He was named by the U. S. Congress, Office of Technology Assessment to an Advisory Board for a study of biodiversity and legislation. The American Academy of Religion elected him president of the Rocky Mountain - Great Plains Region. Rolston is listed in <i>Who's Who in the World</i> (19th edition, 2002, and earlier), <i>Who's Who in America</i> (55th edition, 2001, and earlier), in <i>Who's Who in Religion</i> (3rd edition, 1986), <i>Who's Who in Science and Technology</i> (2nd edition, 1994), <i>Who's Who in Science and Engineering</i> (6th edition, 2002-03, and earlier), and in <i>Who's Who in American Education</i> (5th edition, 1996-97, and earlier). He is past-president of the International Society for Environmental Ethics and has served on the Board of Governors of the Society for Conservation Biology. He serves on the Advisory Board, American Association for the Advancement of Science, Program of Dialogue on Science, Ethics, and Religion. Rolston's work is published by a variety of presses--from commercial academic publishers (Prentice-Hall, Random House, McGraw Hill, Routledge, Academic Press, Harcourt Brace Jovanovich, Blackwell, Jones and Bartlett, Sinauer), through university presses (Yale University Press, Oxford University Press, Cambridge University Press, University of Wisconsin Press, Pennsylvania State University Press and the University of Queensland [Australia] Press, Temple University Press, University of Arizona Press, Columbia University Press), through specialized philosophy publishers (Prometheus Books, Philosophical Library), religious presses (Abingdon, Fortress, Westminster/John Knox), and general publishers (United States Government Printing Office, United Nations Environment Programme, Sierra Club Books, Westview Press, Island Press). Rolston has published across a wide spectrum of journals--from leading philosophy journals (<i>Ethics</i>; <i>Philosophy and Phenomenological Research</i>; <i>Inquiry</i>; <i>The Monist</i>, <i>Biology and Philosophy</i>; <i>Canadian Philosophical Reviews</i>; <i>British Journal of Aesthetics</i>, <i>Journal of Aesthetics and Art Criticism</i>) and journals of theology (<i>Scottish Journal of Theology</i>, <i>Theology Today</i>, <i>Interpretation</i>; through specialized philosophy journals (<i>Philosophy East and West</i>; <i>Environmental Ethics</i>; <i>Zygon</i>; <i>Journal of Medicine and Philosophy</i>) to leading science journals (<i>BioScience</i>; <i>Natural History</i>, <i>Conservation Biology</i>, <i>Journal of Forestry</i>, <i>Quarterly Review of Biology</i>, <i>Journal of the American Veterinary Medical Association</i>, <i>Perspectives in Biology and Medicine</i>, <i>Biodiversity and Conservation</i>), to professional law journals (<i>University of Colorado Law Review</i>, <i>Yale Journal of International Law</i>) and intellectual religious journals (<i>Christian Century</i>; <i>Commonweal</i>; <i>Christianity Today</i>). He has published in <i>American Forests</i> and <i>The Environmental Professional</i>. Rolston has served as a consultant with over two dozen conservation and policy groups, including the U. S. Congress and a Presidential Commission. He is a member of the Working Group on Ethics of the World Conservation Union (IUCN). He is a founder and the associate editor of <i>Environmental Ethics</i>, a refereed professional journal now in its seventeenth year, and on the editorial board of <i>Zygon: Journal of Science and Religion</i>, <i>Public Affairs Quarterly</i>, <i>Environmental Values</i>, <i>The South African Journal of Philosophy</i> / <i>Suid-Afrikaanse Tydskrif vir Wysbegeerte</i>, <i>Socijalna Ekologija</i> (Zabreg, Croatia), the <i>International Journal of Wilderness</i>, and <i>Conservation Biology</i>. He serves on a half dozen other editorial boards. He has been a recipient of NEH and NSF awards. He won the Pennock Award for Distinguished Service at Colorado State University, the Dean's Award for Creativity and Excellence in the Humanities, and has been named University Distinguished Professor. Rolston's work has received critical notice in <i>The Christian Science Monitor</i>, <i>The Los Angeles Times</i>, and other national papers. He has published in <i>The Denver Post</i>, <i>The Philadelphia Inquirer</i>, and <i>New York Newsday</i>.</p> |
|----------------------------|--------------------------------------|--|

| | | |
|--------------------|---------------------------|--|
| Roughgarden, Joan | Stanford University | Dr. Joan Roughgarden spent her early childhood in the Philippine Islands and Indonesia. She majored in biology and philosophy at the University of Rochester, and received a Ph.D. in theoretical ecology from Harvard University. She is Professor of Biological Sciences at Stanford University, and author of five books and over 120 papers in academic journals. She founded and directed the Earth Systems Program at Stanford, and was awarded for service to undergraduate education. She has also supervised over 30 doctoral and postdoctoral students. Her current research links ecology with economic theory. She does not have any extramural grants to support the research she's done on ecological economics. She presently has a grant proposal under review at the NSF to continue research on the community ecology of Anolis lizards in the Lesser Antilles. |
| Sagoff, Mark | University of Maryland | Dr. Mark Sagoff is Senior Research Scholar in the Institute for Philosophy and Public Policy at the School of Public Affairs at the University of Maryland, College Park, and has published widely in journals of law, philosophy, and the environment. He was named a Pew Scholar in Conservation and the Environment in 1991; served from 1994-1997 as President of the International Society for Environmental Ethics; for the academic year 1998-99, Sagoff was awarded a fellowship at the Woodrow Wilson International Center for Scholars; his is a Fellow of the Hastings Center, and in 2000 he was elected a Fellow of the American Association for the Advancement of Science. Sagoff has an A.B. from Harvard and a Ph.D. (Philosophy) from the University of Rochester, and he has taught at Princeton, the University of Pennsylvania, the University of Wisconsin (Madison), and Cornell before coming to the University of Maryland. Sagoff served on the Committee on Noneconomic and Economic Value of Biodiversity, Board on Biology, Commission on Life Sciences, National Research Council, 1997-99, is Coeditor of the Journal of Policy Analysis and Management, and belongs to the editorial boards of various journals in ethics, the life sciences, and public policy. Most recently, he received a grant from the EPA/NSF Partnership STAR Program, Award No. 9975770, on for research on Valuation and Collaboration. |
| Segerson, Kathleen | University of Connecticut | Dr. Kathleen Segerson is Professor and Head in the Department of Economics at the University of Connecticut. Prior to coming to the University of Connecticut, Professor Segerson was an assistant professor of Natural Resource Economics at the University of Wisconsin. She is currently a co-editor of the Ashgate Studies in Environmental and Natural Resource Economics, and a member of the editorial board of the International Yearbook of Environmental and Resource Economics and Contemporary Economic Policy. She has previously served as a co-editor and an associate editor of the American Journal of Agricultural Economics and an associate editor of the Journal of Environmental Economics and Management. She has also served as Vice-President and a member of the Board of Directors of the Association of Environmental and Resource Economists (AERE), and on several other subcommittees for AERE and the American Agricultural Economics Association (AAEA). Dr. Segerson's research focuses on the incentive effects of alternative environmental policy instruments, with particular emphasis on the application of legal rules and principles to environmental problems. Specific research areas include: the impact of legal liability for environmental damages in a variety of contexts, including groundwater contamination, hazardous waste management, and workplace accidents; land use regulation and the takings clause; voluntary approaches to environmental protection; the impacts of climate change on U.S. agriculture; and incentives to control non-point pollution from agriculture. Dr. Segerson received a BA degree in mathematics from Dartmouth College in 1977 and a PhD in agricultural and natural resource economics from Cornell University in 1984. |
| Simpson, David R. | Resources for the Future | Dr. David Simpson is a Senior Fellow at Resources for the Future, a Washington, DC-based nonprofit research organization focusing on issues of environmental and resource management. David has studied the economics of biological diversity, land use, market-based incentives, technological innovation, and issues at the intersection of industrial and environmental policy. He is the author of many journal articles and book chapters on the economics of biodiversity, conservation policy, environmental regulation, and industrial competition, and is the editor of two books. He is also the author of a book manuscript now under review on the economic valuation of biodiversity and ecosystem services. Dr. Simpson is a member of the Editorial Councils of the Journal of Environmental Economics and Management and Environment and Development Economics, and he has chaired the Association of Environmental and Resource Economists' annual workshop. He has lectured and consulted on biodiversity to governments, international aid institutions, and universities on five continents. David received his BA in economics from Whitman College and a Ph. D. in economics from the Massachusetts Institute of Technology. He has taught at Tufts University, and occasionally lectures in other university programs. Prior to joining Resources for the Future, he was an economist specializing in competition policy at the U. S. Department of Justice. He has received grants from many public and private funders, including the Sloan and Ford Foundations, the U. S. Department of Energy, and the European Union. |

| | | |
|-----------------|---------------------------------|--|
| Slovic, Paul | University of Oregon | Paul Slovic is president of Decision Research and a professor of psychology at the University of Oregon. He studies human judgment, decision-making, and risk analysis, and has published extensively on these topics. Dr. Slovic received a B.A. degree from Stanford University, an M.A. and Ph.D. degree from the University of Michigan, and an honorary doctorate from the Stockholm School of Economics. He is past president of the Society for Risk Analysis and in 1991 received its Distinguished Contribution Award. In 1993, Dr. Slovic received the Distinguished Scientific Contribution Award from the American Psychological Association, and in 1995 he received the Outstanding Contribution to Science Award from the Oregon Academy of Science. Dr. Slovic has served on numerous advisory committees of the National Research Council/National Academy of Sciences including the committees that wrote "Risk Assessment in the Federal Government: Managing the Process" (1983) and "Understanding Risk: Decision Making in a Democratic Society" (1996). Sources of recent grant and contract support include: National Institute on Aging, National Science Foundation, Agency for HealthCare Research and Quality (AHRQ), Pfizer Corporation, World Health Organization, and Health Care Finance Administration (HCFA). |
| Smith, Bradley | Western Washington University | Dr. Bradley Smith is Dean of the Huxley College of the Environment at Western Washington University. He has 30 years of national and international experience in the environmental arena including city, state and federal experience. Dr. Smith is formerly a member of the Senior Executive Service USEPA. He holds a BA, an MA in Political Science/Public Administration and a Ph.D from the School of Natural Resources and the Environment (University of Michigan). He has extensive experience in the area of interface between science and policy. Dr. Smith is currently Chair (Governor appt) of the Governor's Sustainable Washington Advisory Board. He is President elect of the Council of Environmental Deans and Directors. Dr. Smith is also Environmental advisor to General Motors Corp. NATO Fellow (risk assessment). He formerly served on the Presidents Council for Sustainability (education task force). Recent financial support includes NSF, GM, USIA and DOE. He has authored several books including Environmental Science-A Study of Interrelationships |
| Smith, V. Kerry | North Carolina State University | Dr. V. Kerry Smith is University Distinguished Professor and Director, Center for Environmental and Resource Economic Policy in the Department of Agricultural and Resource Economics at North Carolina State University, and he is a University Fellow in the Quality of the Environment Division of Resources for the Future. Since October 2000 he has been a member of the Advisory Council on Clean Air Compliance Analysis of the U.S. Environmental Protection Agency's Science Advisory Board, and in 2001 he was a member of the Arsenic Rule Benefits Review Panel of EPA's SAB. Dr. Smith received his AB in Economics from Rutgers University in 1966 and his Ph.D. in Economics there in 1970. He presented the Frederick V. Waugh Lecture for the American Agricultural Economics Association in 1992, and at the 2002 AAEA annual meeting he was named an association fellow, the association's most prestigious honor. In addition to the AAEA, he is a member of the American Economic Association, the Southern Economic Association, the Association of Environmental and Resource Economists, and numerous other professional associations. He has held editorial positions with the Journal of Environmental Economics and Management, Land Economics, Review of Economics and Statistics, and other professional journals. His research interests include non-market valuation of environmental resources, role of public information in promoting private risk mitigation, environmental policy and induced technical change, non-point source pollution and nutrient policy. |
| Stahl, Ralph | Dupont | Dr. Stahl received his B.S. in Marine Biology from Texas A&M University (cum laude) in 1976, his M.S. in Biology from Texas A&M University in 1980 and his Ph.D. in Environmental Science and Toxicology from the University of Texas School of Public Health in 1982. After receiving his Ph.D., he was a Senior Postdoctoral Fellow in the Dept. of Pathology at the University of Washington in Seattle where he investigated the impact of genetic toxins on biological systems. Ralph joined the DuPont Company in 1984 and in the intervening years has held both technical and management positions in the research and consulting arenas. His research over the last 20 years has focused primarily on evaluating the effects of chemical stressors on aquatic and terrestrial ecosystems. He has been involved with oceanographic studies in the Atlantic, Pacific, Gulf of Mexico and Caribbean Sea, biological and ecological assessments at contaminated sites in the US and Europe, and numerous toxicological studies with mammals, birds and aquatic organisms. He has been selected by US EPA, Army Corps of Engineers, Strategic Environmental Research and Development Program, National Academy of Science, the Water Environment Research Foundation, NOAA and others to national peer review panels on ecological risk assessment, endocrine disruption in wildlife, and natural resource injury determination. Ralph is active in the Society of Environmental Toxicology and Chemistry, serving on the Ecological Risk Assessment Advisory Group and the Technical Committee, and is a Diplomate of the American Board of Toxicology. He has authored over 25 peer reviewed publications and two books in environmental toxicology and most recently has been responsible for leading DuPont's corporate efforts in ecological risk assessment and natural resource damage assessments for site remediation. Dr. Stahl chairs the American Chemistry Council's (formerly CMA) Environmental Technical Implementation Panel that is implementing ecological research under the chemical industry's Long Range Research Initiative. |

| | | |
|---------------------------------|----------------------|--|
| Stavins, Robert | Harvard University | Dr. Robert N. Stavins is the Albert Pratt Professor of Business and Government, Chairman of the Environment and Natural Resources Faculty Group at the John F. Kennedy School of Government, Harvard University, and Director of the Environmental Economics Program at Harvard University. He is a University Fellow of Resources for the Future, Past Chairman of the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency's (EPA) Science Advisory Board, Director of the University-wide Environmental Economics Program at Harvard University; and a Member of: EPA's Clean Air Act Advisory Committee, the Intergovernmental Panel on Climate Change (IPCC), the Board of Directors of the Robert and Renée Belfer Center for Science and International Affairs, the Executive Committee of the Harvard University Committee on Environment (UCE), the Board of Academic Advisors of the AEI-Brookings Joint Center for Regulatory Studies. He serves on Editorial Boards of The Journal of Environmental Economics and Management, Resource and Energy Economics, Land Economics, Environmental Economics Abstracts, B.E. Journals of Economic Analysis & Policy, and Economic Issues. He is also a contributing editor of Environment, and was formerly a member of the Board of Directors of the Association of Environmental and Resource Economists. Professor Stavins' research has focused on diverse areas of environmental economics and policy, including examinations of: policy instrument choice under uncertainty; competitiveness effects of regulation; design and implementation of market-based policy instruments; diffusion of pollution-control technologies; and depletion of forested wetlands. His current research includes analyses of: technology innovation; environmental benefit valuation; political economy of policy instrument choice; and econometric estimation of carbon sequestration costs. Professor Stavins directed Project 88, a bi-partisan effort co-chaired by former Senator Timothy Wirth and the late Senator John Heinz, to develop innovative approaches to environmental and resource problems. He continues to work closely with public officials on matters of national and international environmental policy. He has been a consultant to the National Academy of Sciences, several Administrations, Members of Congress, environmental advocacy groups, the World Bank, the United Nations, the U.S. Agency for International Development, state and national governments, and private foundations and firms. Prior to coming to Harvard, Stavins was a staff economist at the Environmental Defense Fund; and before that, he managed irrigation development in the Middle East, and spent four years working in agricultural extension in West Africa as a Peace Corps volunteer. |
| Thomas, Valerie | Princeton University | Dr. Valerie Thomas is a Research Scientist at the Princeton Environmental institute at Princeton University. Dr. Thomas received her Ph.D. in theoretical physics from Cornell University and was a post-doctoral Research Fellow at the Department of Engineering and Public Policy at Carnegie Mellon University. Her research is in the areas of Industrial Ecology and environmental Policy. Recent research topics include mercury exposure, dioxin sources, the economic demand impacts of second-hand markets, electronics for product recycling, environmental policy in the former Soviet Union, and ethanol as a gasoline lead replacement in Africa. She is co-author of the book "Industrial Ecology and Global Change," (Cambridge University Press, 1994). She is a Member of the Environmental Engineering Committee of the EPA Science Advisory Board. She was Chair of the Metals Assessment Review (2002), and she has participated in the SAB reviews of the Dioxin Reassessment, the Mercury Report to Congress, and the Integrated Risk Project. She is a Fellow of the American Physical Society. She will be vice-chair of the Gordon Conference on Industrial Ecology in 2004 and chair in 2006. She has funding from the US EPA STAR grants program, and from the National Science Foundation. |
| Thompson, Jr., Barton H. (Buzz) | Stanford University | Dr. Barton H. Thompson, Jr., is Vice Dean and Robert E. Paradise Professor of Natural Resources Law at Stanford Law School, a Senior Scholar (by courtesy) at the Stanford Institute for International Studies, and a member of both the Core Faculty and Executive Committee of Stanford University's Interdisciplinary Graduate Program in Environment and Resources. He received an A.B. in Economics from Stanford University in 1972, an M.B.A. from the Stanford Graduate School of Business in 1976, and a J.D. from Stanford Law School in 1976. He has been a member of the Stanford faculty since 1986. Professor Thompson's research focuses on the interdisciplinary analysis (with an emphasis on economics, law, and cognitive psychology) of environmental and natural resource policies and the formulation of innovative tools and approaches for addressing environmental and natural resource issues. He has written several articles on the opportunities for and barriers to investments in ecosystem services and co-organized a workshop conference at Stanford University in November 2000 on Protecting Ecosystem Services: Science, Economics, and Law. Over the past three years, Professor Thompson has received grant support from the Hewlett Foundation for a study of global watershed services and the incorporation of these services into watershed decision-making, from the National Science Foundation to develop a formal information infrastructure for regulatory information management and compliance assistance (RegNet), from the Packard Foundation for research on the integration of science and policy in fisheries management, and from the Pew Charitable Trusts for research on regional fishery management councils. Professor Thompson also is a member of the Science Review Panel for the CalFed Environmental Water Account. |

| | | |
|---------------|------------------------------|---|
| Wiese, Arthur | American Petroleum Institute | Dr. Wiese is a Senior Economist in the Policy Analysis and Statistics Department at the American Petroleum Institute where he has worked since 1993. His responsibilities include the economic analysis of a wide-range of regulatory, environmental and natural resource issues of import to the downstream sector. Dr. Wiese has written extensively on the economic impacts of environmental regulations, including publications in academic journals. Recent areas of work include economic analyses of diesel sulfur regulation, Tier 2 gasoline sulfur regulation, and the impacts of renewable fuels mandates and MTBE phase-down. Before joining API, Dr. Wiese served as an economist in the Department of Agriculture from 1990-1993 where he performed economic analysis of energy and trade policy using a general equilibrium framework. He also maintained an active research agenda including the construction of large-scale general equilibrium models and the publication of research in academic journals. Dr. Wiese obtained his Ph.D. in applied economics with specialization in Production, Natural Resource, Public Policy and Statistics from the University of Minnesota in 1991. He also taught an upper division environmental economics course with emphasis in cost-benefit analysis. Dr Wiese is a member of the National Economist Club, and a member of the Cosmos Club where he has hosted seminars related to the economic and environmental impacts of climate change. Dr. Wiese has not recently been the recipient of any grants or funding for research. |
| Willis, Henry | RAND | Dr. Henry H. Willis earned his Ph.D. in 2002 from the Department of Engineering and Public Policy at Carnegie Mellon. For his dissertation research, Dr. Willis developed and evaluated a method for eliciting informed risk judgments from the general public for incorporation in comparative risk ranking efforts. This required understanding how ecological impacts are valued in comparison to human health impacts. This research was funded by the U.S. EPA (grant R8279200-1-0) and the National Science Foundation (grant SES-9975200). Dr. Willis also holds an M.S. in Environmental Engineering and Science from the University of Cincinnati and a B.A. in Chemistry and Environmental Studies from the University of Pennsylvania. In his current position at RAND, Dr. Willis is continuing research on the use of decision sciences and risk analysis to support public policy decision-making. He is also an active member of the Society of Risk Analysis serving on the Annual Conference Program Committee and Executive Committee for the Risk Communication Specialty Group. |

Attachment 3

List of the Names of Groups and Individuals Submitting Public Comment on the Values Committee Short List

David Blockstein, National Council for Science and the Environment
Randy Bruins, USEPA ORD
Lauraine Chestnut, Stratus Consulting
Virginia Dale, Oak Ridge
Brian Heninger, USEPA NCEE
Joe Meyer, University of Wyoming
Steve Newbold, USEPA NCEE
Charles Pittinger, Cadmus Group
Mark Schaeffer, Nature Serve
Ben Simon, Department of Interior
Kelly Sinclair, USEPA
Oz Schmit, Yale University
Mark Stein, USEPA Region 1
Hale Thurston, USEPA,ORD
Keith Wheeler, North American Chair, International Union of Conservation and Nature

Attachment 4
Roster of Committee on Valuing the Protection of Ecological Systems and Services

CHAIR

Dr. Domenico Grasso, Rosemary Bradford Hewlett Professor and Chair, Picker Engineering Program, Smith College, Northampton, MA

Also Member: Environmental Engineering Committee

OTHER SAB MEMBERS

Dr. William Louis Ascher, Dean of the Faculty, Bauer Center, Claremont McKenna College, Claremont College, Claremont, CA

Dr. Gregory Biddinger, Environmental Issues Advisor, Exxon Mobil Refining and Supply Company, Fairfax, VA

Member: Ecological Processes and Effects Committee

Dr. Anne Bostrom, Associate Professor, School of Public Policy, Georgia Institute of Technology, Atlanta, GA

Dr. James Boyd, Senior Fellow, Director, Energy & Natural Resources Division, Resources for the Future, Washington, DC

Dr. Robert Costanza, Professor/Director, Gund Institute for Ecological Economics, School of Natural Resources, University of Vermont, Burlington, VT

Dr. Terry Daniel, Professor, Department of Psychology, Environmental Perception Laboratory, University of Arizona, Tucson, AZ

Dr. A. Myrick Freeman, Research Professor of Economics, Department of Economics, Bowdoin College, Brunswick, ME

Dr. Dennis Grossman, Vice President for Science, Science Division, NatureServe, Arlington, VA

Dr. Geoffrey Heal, Paul Garrett Professor of Public Policy and Business Responsibility, Columbia Business School, Columbia University, New York, NY

Dr. Robert Huggett, Vice President for Research and Graduate Studies, Office of Vice President for Research and Graduate Studies, Michigan State University, East Lansing, MI

Dr. Klaus Lackner, Ewing Worzel Professor of Geophysics, Earth and Environmental Engineering, Columbia University, New York, NY

Dr. Douglas E. MacLean, Professor, Department of Philosophy, University of North Carolina, Chapel Hill, NC

Dr. Harold Mooney, Paul S. Achilles Professor of Environmental Biology, Department of Biological Sciences, Stanford University, Stanford, CA

Dr. Richard Norgaard, Professor of Energy and Resources, Energy and Resources Program, Agricultural and Resource Economics, University of California at Berkeley, Berkeley, CA
Member: Environmental Economics Advisory Committee

Dr. Louis F. Pitelka, Director and Professor, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD

Dr. Stephen Polasky, Fesler-Lampert Professor of Ecological/Environmental Economics, Department of Applied Economics, University of Minnesota, St. Paul, MN
Member: Environmental Economics Advisory Committee

Dr. Paul G. Risser, Chancellor, Oklahoma State Regents for Higher Education, Oklahoma City, OK

Dr. Holmes Rolston, University Distinguished Professor, Department of Philosophy, Colorado State University, Fort Collins, CO

Dr. Joan Roughgarden, Professor, Biological Sciences and Evolutionary Biology, Stanford University, Stanford, CA

Dr. Mark Sagoff, Senior Research Scholar, University of Maryland, College Park, Maryland

Dr. Kathleen Segerson, Professor, Department of Economics, University of Connecticut, Storrs, CT
Member: Environmental Economics Advisory Committee

Dr. Paul Slovic, Professor, Department of Psychology, University of Oregon, Eugene, OR

Dr. V. Kerry Smith, University Distinguished Professor, Department of Agricultural and Resource Economics, College of Agriculture and Life Sciences, North Carolina State University, Raleigh, NC
Member: Advisory Council on Clean Air Compliance Analysis

Dr. Robert Stavins, Albert Pratt Professor of Business and Government, Environment and Natural Resources Program, John F. Kennedy School of Government, Harvard University, Cambridge, MA

Member: Environmental Economics Advisory Committee

Dr. Valerie Thomas, Research Scientist, Princeton Environmental Institute, Princeton University, Princeton, NJ

Member: Environmental Engineering Committee

Dr. Barton H. (Buzz) Thompson, Jr., Robert E. Paradise Professor of Natural Resources Law and Vice Dean, Stanford Law School, Stanford University, Stanford, CA